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UNITED STATES DEPARTMENT OF AGRICULTURE
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Crops Research Division
Beltsville, Maryland

AN EVALUATION OF SEVERAL CHEMICALS FOR THEIR HERBICIDAL PROPERTIES

1964 Field Results

W. A. Gentner

Preliminary Report Not For Publication 1/

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4-dimethylaminothiocyanobenzene	-	2929	CCC	2, 19, 20
N-(3,4-dichlorophenyl)-O-N',N'-trimethyl=isourea	-	43975	BAY	3, 19, 20
2,4-dichlorophenoxythioacetic acid amide	-	50870	BAY	4, 19, 20
1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2	-	55962	BAY	5, 19, 20
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2-chloro-4-ethylamino-6-sec-butylamino-s-triazine	-	GS-13528	GCC	11, 19, 20
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Chemical*	Designation	Company Code	Source**	Table Numbers
2-methylmercapto-4-ethylamino-6-tert-butylamino-s-triazine	-	GS-14260	GCC	13, 19, 20
2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine	-	GS-12344	GCC	14, 19, 20
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N-tert-butylanaline hydrochloride	-	51,911	ACC	29, 37, 38
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Source and Index of Chemicals

Chemical*	Designation	Company Code	Source**	Table Numbers
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3,4-dichlorobenzyl N-methylcarbamate	-	UC 22463	UCC	33, 37, 38
isopropyl N-(3-chlorophenyl)carbamate	CIPC	-	PPG	18, 19, 20, 34, 37, 38
alkanolamine salts of 2,4-dichlorophenoxy= acetic acid	2,4-D	-	DCC	16, 19, 20, 35, 37, 38
alkanolamine salts of 4,6-dinitro-o-sec-butylphenol	DNBP	-	DCC	17, 19, 20, 36, 37, 38

* Nomenclature based on Weed Society of America Terminology Committee Report.

** Abbreviation of Contributors

List of Contributors

Abbreviation	Source of Chemicals	Contact
ACC	American Cyanamid Company, Princeton, New Jersey	D. D. Bondarenko
ARM	Armour Industrial Chemical Company, McCook, Illinois	W. W. Abramitis
BAY	Farbenfabriken Bayer AG., Germany and Vero Beach Laboratories, Inc., Vero Beach, Florida	W. E. Wagner
CCC	Chipman Chemical Company, Bound Brook, New Jersey	L. R. Reed
CIBA	CIBA Corporttion, Vero Beach, Florida	V. S. Searcy
DCC	Dow Chemical Company, Midland, Michigan	L. P. Southwick
EID	E. I. du Pont de Nemours and Company, Wilmington, Delaware	R. W. Varner
GCC	Geigy Chemical Company, Yonkers, New York	C. D. Ercegovich
MCC	Monsanto Chemical Company, St. Louis, Missouri	R. E. Althaus
PPG	Pittsburgh Plate Glass Company, Pittsburgh, Pennsylvania	W. C. McConnell
PSC	Pennsalt Chemical Corporation, Aurora, Illinois	H. L. Lindaberry
UCC	Union Carbide Chemical Corporation, New York, New York	R. B. Seeley

AN EVALUATION OF SEVERAL CHEMICALS FOR THEIR HERBICIDAL PROPERTIES

1964 Field Results

W. A. Gentner [1/]

The results of the 1964 field evaluation studies of several chemicals for their herbicidal properties are presented in this report.

The objectives of the herbicide evaluation project are (1) to develop herbicide evaluation techniques, (2) to determine the responses of crops and weeds to preemergence and postemergence treatments, (3) to obtain preliminary information on the herbicidal properties of new chemicals, (4) to study the relationship between chemical structure and herbicidal activity, and (5) to make this information available to U. S. Department of Agriculture personnel and cooperating state and chemical industry weed research workers.

These studies are of a preliminary nature. Plots were unreplicated and the results should be analyzed and used accordingly.

MATERIALS AND METHODS

The 1964 field evaluation of several chemicals for their herbicidal properties include a preliminary and secondary study in which chemicals were applied using the logarithmic sprayer.

Studies were conducted on a Codorus-Elkton silt loam. Eight hundred pounds per acre of 5-10-5 fertilizer were applied prior to planting. A mixture of malathion and methoxychlor was used in scheduled spraying to control insects.

Rainfall, irrigation, radiation, and temperature data are presented in figures 1 through 5.

A list of common and binomial names of test species, varieties, and heights at time of postemergence treatment is given on page 27.

Chemical application rates are given on an active ingredient basis. Herbicidal properties of compounds will be discussed by treatment type under the following catagories:

1/ Plant Physiologist, Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, Beltsville, Maryland.

(1) Small-Seeded Legume Crops: alfalfa, birdsfoot trefoil, red clover.

(2) Cereals and Forage Crops: buckwheat, field corn, oats, sorghum.

(3) Oilseed and Fiber Crops: cotton, flax, peanuts, safflower, soybeans.

(4) Sugar Crops: sugarbeets.

(5) Vegetable Crops: cabbage, sweet corn, cucumbers, lima beans, onions, peas, snapbeans, squash, turnips.

(6) Soil Sterilants

Preliminary Logarithmic Plots

Chemicals included in the preliminary logarithmic plot studies were placed in this investigational catagory because data from greenhouse studies, data supplied by manufacturers, or data available from research literature provided limited information on their herbicidal properties.

Fifteen crop and two weed species were seeded in the preliminary logarithmic plots. Plots consisted of 3 beds 4 ft. wide and 80 ft. long. Four test species were planted in each bed using a tractor-mounted gang planter. All test species were seeded at the recommended depth at higher than recommended seeding rates to provide large populations.

Pigweed and ryegrass were row planted on the outside shoulders of the plot. The entire plot was overseeded to alfalfa, birdsfoot trefoil, and red clover using a centrifugal seeder. Overseeded test species were covered by means of a chain drag. Crabgrass was indigenous to all plots. The term grasses in tables 1-20 includes a mixture of crabgrass (*Digitaria sanguinalis*), foxtail (*Setaria* spp.), barnyardgrass (*Echinochloa crusgalli*), and purple lovegrass (*Eragrostis spectabilis*) which were indigenous. The term broadleaf weeds refers to an indigenous mixture of smartweed (*Polygonum pennsylvanicum*), mustard (*Brassica kaber*) and purslane (*Portulaca oleracea*).

Test species were planted on May 26.

Preemergence treatments were applied on May 27 and data were recorded on June 22.

Postemergence treatments were applied on June 24 and data were recorded on July 14.

Crop tolerance and weed susceptibility were recorded at the high level of application and at each of the three succeeding half dosage distances using a 0-100 injury scale where 0 equals no effect and 100 death of the test species.

Secondary Logarithmic Plots

New chemicals on which extensive information was available from the manufacturer and/or research literature were evaluated in secondary logarithmic plots.

Twenty-one crops and four weeds were seeded as test species in the secondary logarithmic plots. Plots consisted of 6 beds 4 ft. wide and 80 ft. long. Each bed contained 4 test species. The stand of tomatoes was insufficient to be included in the results. Birdsfoot trefoil and red clover were overseeded by means of a centrifugal seeder and covered with a chain drag. Crop species were seeded at the recommended depth at higher than recommended seeding rates to provide large populations.

Test species were seeded in the secondary logarithmic plots on May 19.

Preemergence treatments were applied on May 20 and data were recorded on June 15.

Postemergence treatments were applied on June 17 and data were recorded on July 10.

The term grasses in tables 21-38 refers to an indigenous mixture of crabgrass, foxtail, and barnyardgrass. The term broadleaved weeds refers to an indigenous mixture of ragweed (*Ambrosia artemisiifolia*), purslane, smartweed, and three-seeded mercury (*Acalypha virginica*).

Rates of application presented in tables 21-38 represent the complete rate range of application of each compound. Rates of chemical application varied logarithmically from an initial high rate down to one-eighth of the high rate.

Crop tolerance and weed susceptibility were recorded at the high level of application and at each of the three subsequent half dosage distances using a 0-100 injury scale, where 0 equals no effect and 100 death of the test species.

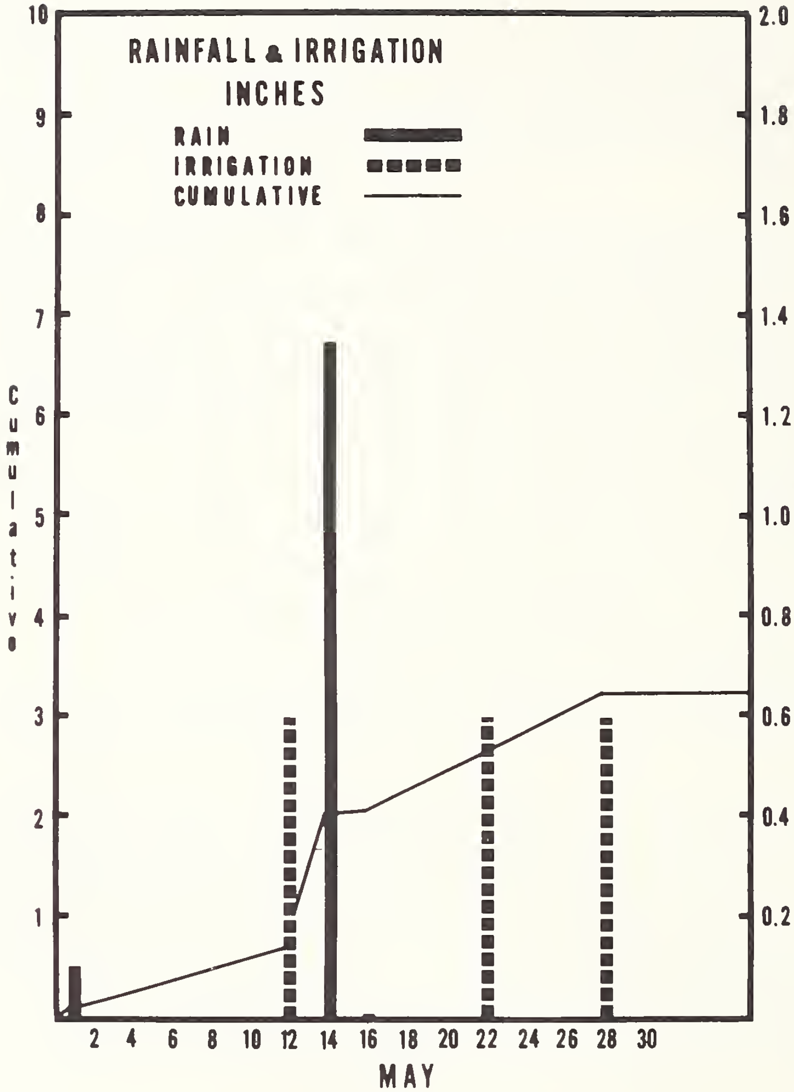

Figure 1.--Rainfall and Irrigation Inches for Month of May, 1964.

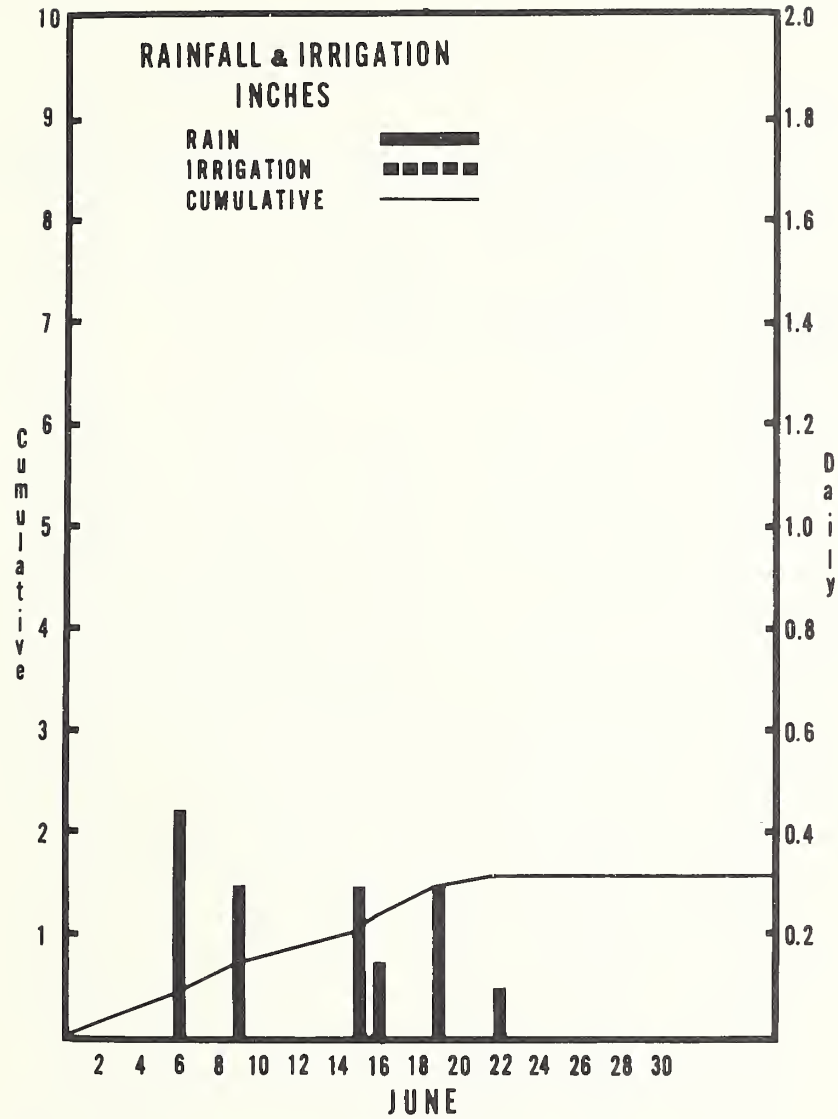

Figure 2.--Rainfall and Irrigation Inches for Month of June, 1964.

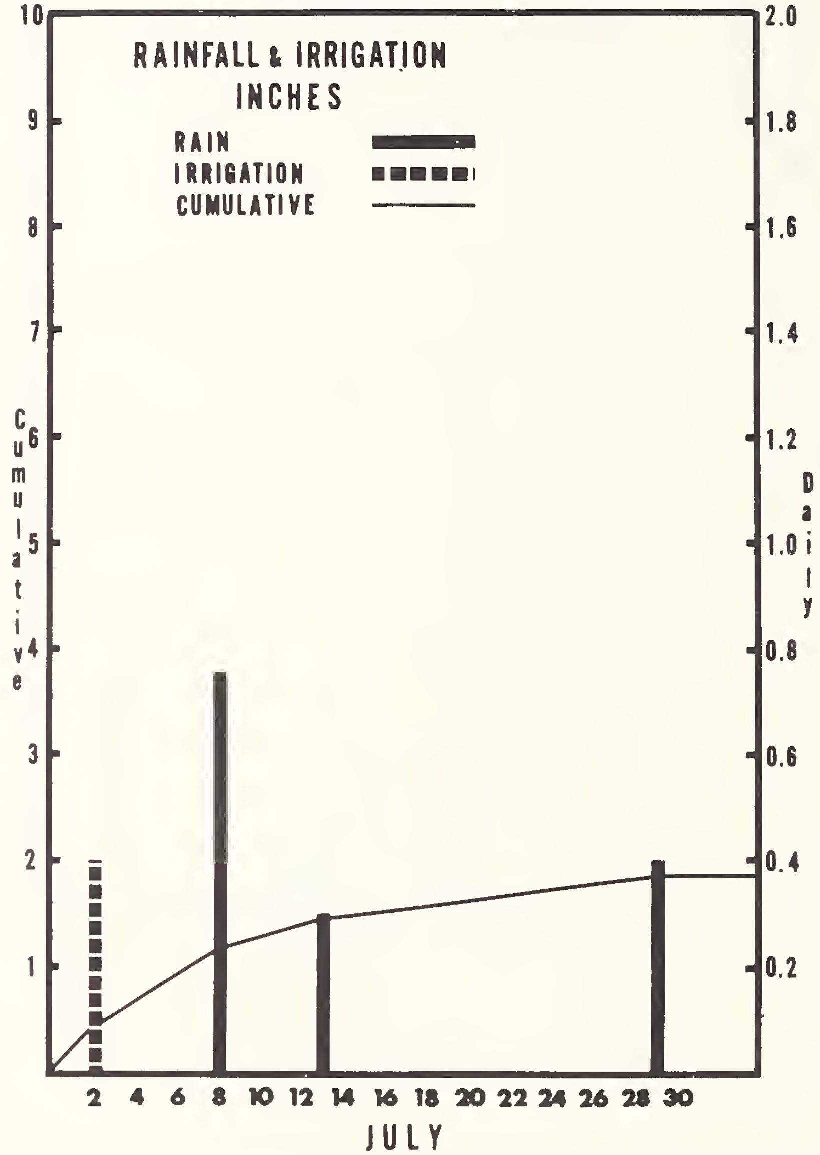

Figure 3.--Rainfall and Irrigation Inches for Month of July, 1964.

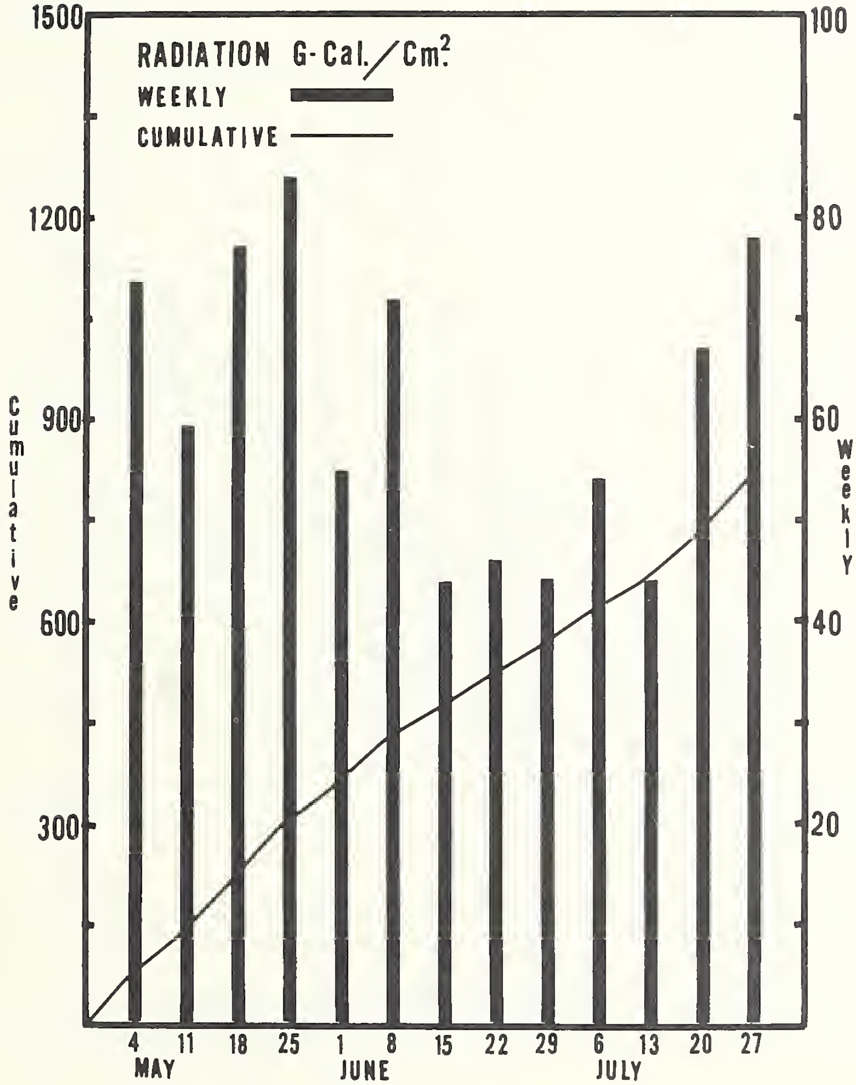

Figure 4.--Radiation Graph for Months of May, June, and July, 1964.

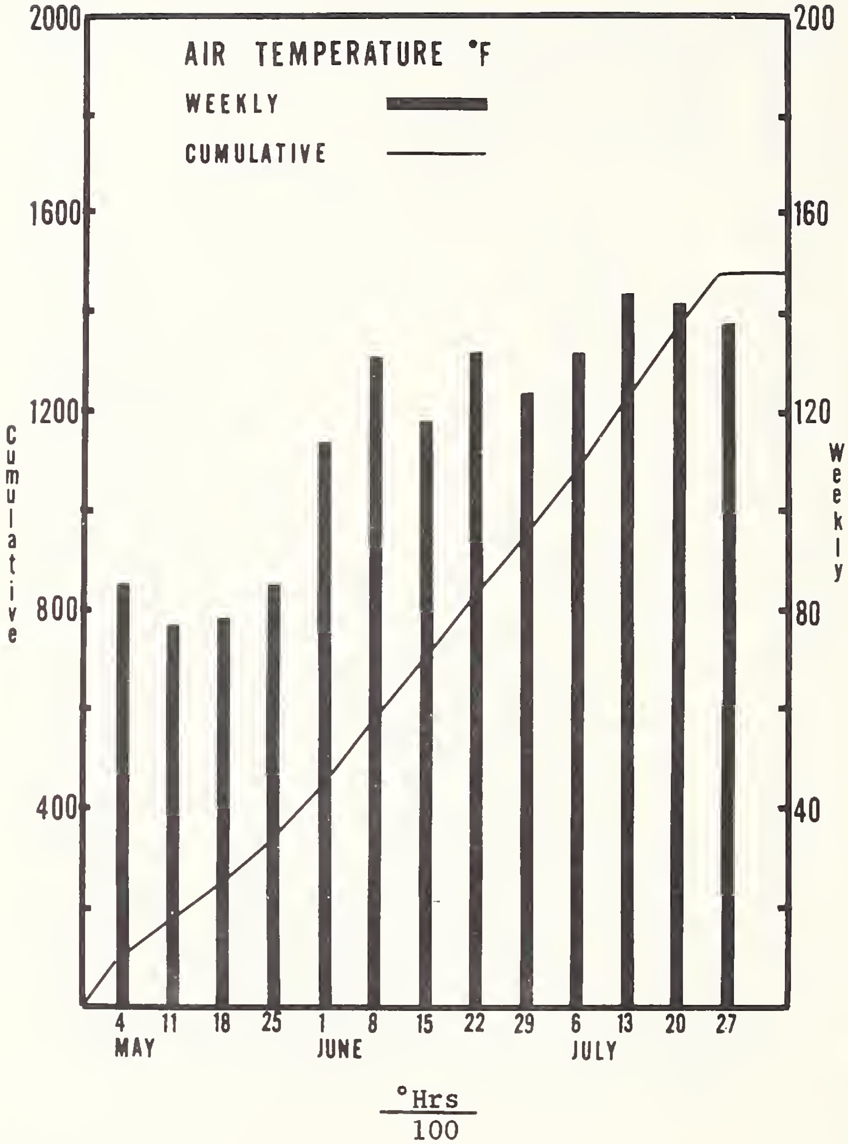

Figure 5.--Air Temperature Graph for Months of May, June, and July, 1964.

RESULTS AND DISCUSSION

The preliminary data contained in this report are presented to serve as a guide to research workers in the use and development of prospective herbicides.

Preliminary Logarithmic Plots

Data indicative of the responses of test species to prospective herbicides included in preliminary logarithmic plots are presented in tables 1-18 and are summarized in tables 19 and 20.

Small-Seeded Legume Crops

Weed-grasses and broadleaved weeds were controlled in several of the small-seeded legumes used in this study by preemergence applications of 4-dimethylaminothiocyanobenzene, DNBP, and CIPC (tables 2, 17 and 18).

The preemergence application of 1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 and DNBP satisfactorily controlled broadleaved weeds but not weed-grasses in one or more of the small-seeded legume crops included in this study (tables 6 and 17).

Weed-grasses but not broadleaved weeds were controlled in alfalfa by preemergence application of 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (table 14).

One or more broadleaved weeds and weed-grasses were controlled in alfalfa by postemergence application of 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine and CIPC (tables 14 and 18).

One or more weed-grasses but not broadleaved weeds was controlled by postemergence treatments with CIPC (table 18).

Postemergence application of the following prospective herbicides satisfactorily controlled broadleaved weeds but not weed-grasses in either alfalfa and/or red clover:

(1) N-(3,4-dichlorophenyl)-O-N',N'-trimethylisourea (table 3).

(2) 1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2 (table 5).

(3) 2-methoxy-4-isopropylamino-6-allylamino-s-triazine (table 9).

Cereals and Forage Crops

The preemergence application of the following prospective herbicides controlled one or more broadleaved weeds and weed-grasses in buckwheat and/or field corn:

(1) *N*-(*p*-bromophenyl)-*N*'-methyl-*N*'-methoxyurea (table 1).

(2) 4-dimethylaminothiocyanobenzene (table 2).

(3) *N*-(3,4-dichlorophenyl)-*O*-*N*',*N*'-trimethylisourea (table 3).

(4) 2,4-dichlorophenoxythioacetic acid amide (table 4).

(5) 1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 (table 6).

(6) *N*-phenylcarbamid-2,6-dichlorobenzaldoxime (table 7).

(7) 4-(2,6-dichlorophenyl)-1,3,5-oxathiazolone-2 (table 8).

(8) 2-methoxy-4-isopropylamino-6-allylamino-*s*-triazine (table 9).

(9) 2-chloro-4-ethylamino-6-*sec*-butylamino-*s*-triazine (table 11).

(10) 2-chloro-4-ethylamino-6-*tert*-butylamino-*s*-triazine (table 12).

(11) 2-methylmercapto-4-ethylamino-6-*tert*-butylamino-*s*-triazine (table 13).

(12) 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-*s*-triazine (table 14).

(13) CIPC (table 18).

Broadleaved weeds but not weed-grasses were controlled in buckwheat by preemergence application of 1-phenyl-3-methyl-5-allyl hexahydro -1,3,5-triazinone-2 (table 6).

The postemergence application of *N*-(*p*-bromophenyl)-*N*'-methyl-*N*'-methoxyurea, 2-methoxy-4-isopropylamino-6-allylamino-*s*-triazine, and 2,4-D satisfactorily controlled one or more broadleaved weeds and weed-grasses in field corn (tables 1, 9 and 16).

One or more broadleaved weeds but not weed-grasses was satisfactorily controlled in field corn or buckwheat by postemergence applications of 2,4-dichlorophenoxythioacetic acid amide, 2-methoxy-4-isopropylamino-6-allylamino-s-triazine, and 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (tables 4, 9, and 14).

Oilseed and Fiber Crops

One or more broadleaved weeds and weed-grasses were controlled in one or more of the oilseed and fiber crops included in these studies by the preemergence application of the following prospective herbicides:

(1) N-(p-bromophenyl)-N'-methyl-N'-methoxyurea (table 1).

(2) 4-dimethylaminothiocyanobenzene (table 2).

(3) N-(3,4-dichlorophenyl)-O-N',N'-trimethylisourea (table 3).

(4) 2,4-dichlorophenoxythioacetic acid amide (table 4).

(5) 1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2 (table 5).

(6) 1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 (table 6).

(7) N-phenylcarbamid-2,6-dichlorobenzaldoxime (table 7).

(8) 4-(2,6-dichlorophenyl)-1,3,5-oxathiazolone-2 (table 8).

(9) 2-methoxy-4-isopropylamino-6-allylamino-s-triazine (table 9).

(10) 2-chloro-4-allylamino-6-(3-methoxypropylamino)-s-triazine (table 10).

(11) 2-chloro-4-ethylamino-6-sec-butylamino-s-triazine (table 11).

(12) 2-methylmercapto-4-ethylamino-6-tert-butylamino-s-triazine (table 13).

(13) 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (table 14).

(14) DNBP (table 17).

(15) CIPC (table 18).

One or more broadleaved weeds but not weed-grasses was satisfactorily controlled in one or more of the oilseed and fiber crops by preemergence applications of 1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 and dodecylaminetrichloroacetate (tables 6 and 15).

One or more weed-grasses but not broadleaved weeds was satisfactorily controlled in soybeans by preemergence application of N-phenyl=carbamid-2,6-dichlorobenzaldoxime (table 7).

One or more broadleaved weeds and weed-grasses was satisfactorily controlled in one or more of the oilseed and fiber crops by postemergence applications of the following:

(1) N-(p-bromophenyl)-N'-methyl-N'-methoxyurea (table 1).

(2) N-(3,4-dichlorophenyl)-O-N',N'-trimethylisourea (table 3).

(3) DNBP (table 17).

One or more broadleaved weeds but not weed-grasses was satisfactorily controlled in one or more of the oilseed and fiber crops by postemergence application of the following materials:

(1) 2,4-dichlorophenoxythioacetic acid amide (table 4).

(2) 2-methoxy-4-isopropylamino-6-allylamino-s-triazine (table 9).

(3) 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (table 14).

(4) 2,4-D (table 16).

The postemergence application of CIPC satisfactorily controlled one or more weed-grasses in cotton, peanuts, and safflower without too seriously damaging the crops.

Sugar Crops

One or more broadleaved weeds and one or more weed-grasses were satisfactorily controlled in sugarbeets by preemergence applications of 4-dimethylaminothiocyanobenzene and CIPC (tables 2 and 18).

The postemergence treatment with CIPC controlled one or more broadleaved weeds and one or more weed-grasses in sugarbeets.

Vegetable Crops

One or more broadleaved weeds and one or more weed-grasses were satisfactorily controlled in one or more of the vegetable crops included in these studies by preemergence treatment with the following prospective herbicides:

(1) N-(p-bromophenyl)-N'-methyl-N'-methoxyurea (table 1).

(2) 4-dimethylaminothiocyanobenzene (table 2).

(3) N-(3,4-dichlorophenyl)-O-N',N'-trimethylisourea (table 3).

(4) 1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 (table 6).

(5) N-phenylcarbamid-2,6-dichlorobenzaldoxime (table 7).

(6) 4-(2,6-dichlorophenyl)-1,3,5-oxathiazolone-2 (table 8).

(7) 2-methoxy-4-isopropylamino-6-allylamino-s-triazine (table 9).

(8) 2-chloro-4-allylamino-6-(3-methoxypropylamino)-s-triazine (table 10).

(9) 2-methylmercapto-4-ethylamino-6-tert-butylamino-s-triazine (table 13).

(10) 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (table 14).

(11) DNBP (table 17).

(12) CIPC (table 18).

One or more weed-grasses but not broadleaved weeds was controlled in cucumbers by preemergence applications of N-phenylcarbamid-2,6-dichlorobenzaldoxime and 2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (tables 7 and 14).

One or more broadleaved weeds but not weed-grasses was satisfactorily controlled in one or more of the vegetable crops included in these studies by postemergence treatment with 2-methoxy-4-isopropylamino-6-allylamino-s-triazine and 2-ethylamino-4-(3-methoxypropylamino-6-methylthio-s-triazine (tables 9 and 14).

The postemergence application of CIPC satisfactorily controlled one or more weed-grasses but not broadleaved weeds in squash (table 18).

Soil Sterilants

Prospective herbicides which should be evaluated as preemergence soil sterilants are as follows:

(1) 1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2 (table 5).

(2) 2-chloro-4-ethylamino-6-*sec*-butylamino-*s*-triazine (table 11).

(3) 2-chloro-4-ethylamino-6-*tert*-butylamino-*s*-triazine (table 12).

(4) 2 methylmercapto-4-ethylamino-6-*tert*-butylamino-*s*-triazine (table 13).

The 2-methylmercapto-4-ethylamino-6-*tert*-butylamino-*s*-triazine should also be evaluated as a postemergence soil sterilant.

Secondary Logarithmic Plots

Data indicative of the responses of test species to prospective herbicides included in secondary logarithmic plots are presented in tables 21-36 and are summarized in tables 37 and 38.

Small-Seeded Legume Crops

One or more broadleaved weeds and weed-grasses were controlled in one or more of the small-seeded legume crops by preemergence applications of the following herbicides:

(1) 2,4-dinitrophenyl-(2'-*sec*-butyl-4',6'-dinitrophenyl) carbonate (table 31).

(2) DNBP (table 36).

One or more broadleaved weeds but not weed-grasses was satisfactorily controlled in the small-seeded legume crops by preemergence applications of 2,4-dinitrophenyl-(2'-*sec*-butyl-4',6'-dinitrophenyl) carbonate, CIPC, 2,4-D, and DNBP (tables 31, 34, 35 and 36).

One or more weed-grasses but not broadleaved weeds was satisfactorily controlled in the small-seeded cereal legume crops by the preemergence applications of 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

Postemergence control of one or more broadleaved weeds and weed-grasses in one or more of the small-seeded legume crops resulted from treatment with the following materials:

(1) N-(3-trifluoromethylphenyl)-N',N'-dimethylurea (table 28).

(2) 2,4-dinitrophenyl-(2'-sec-butyl-4',6'-dinitrophenyl)carbonate (table 31).

(3) potassium azide (table 32).

(4) DNBP (table 36)

One or more broadleaved weeds but not weed-grasses was controlled in one or more of the small-seeded legume crops included in these studies by postemergence application of the following herbicides:

(1) 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

(2) 6-tert-butyl-2-chloro-o-acetotoluidide (table 25).

(3) 2-bromo-2'-tert-butyl-N-methoxymethyl-6-methylacetanilide (table 26).

Cereals and Forage Crops

One or more broadleaved weeds and weed-grasses was controlled in one or more of the cereal and forage crops by preemergence applications of the following herbicides:

(1) 2-chloro-N-isopropylacetanilide (table 24).

(2) 2-bromo-2'-tert-butyl-N-methoxymethyl-6-methylacetanilide (table 26).

(3) N-(3-trifluoromethylphenyl)-N',N'-dimethylurea (table 28).

(4) 2,4-dinitrophenyl-(2'-sec-butyl-4',6'-dinitrophenyl)carbonate (table 31).

(5) potassium azide (table 32).

(6) CIPC (table 34).

(7) DNBP (table 36).

One or more broadleaved weeds but not weed-grasses was controlled in one or more of the cereals and forage crops included in these studies by preemergence treatments with CIPC, 2,4-D, and DNBP (tables 34, 35 and 36).

One or more weed-grasses but not broadleaved weeds was satisfactorily controlled in the cereals and forage crops by preemergence applications of potassium azide (table 32).

Postemergence control of one or more broadleaved weeds and weed-grasses was achieved in the cereals and forage crops included in these studies by the following herbicides:

(1) N-(3-trifluoromethylphenyl)-N',N'-dimethylurea (table 28).

(2) 2,4-dinitrophenyl-(2'-sec-butyl-4',6'-dinitrophenyl)carbonate (table 31).

(3) potassium azide (table 32).

(4) 2,4-D (table 35).

One or more broadleaved weeds but not weed-grasses was controlled in one or more of the cereals and forage crops by postemergence treatment with the following herbicides:

(1) 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

(2) 6-tert-butyl-2-chloro-o-acetotoluidide (table 25).

(3) 2-bromo-2'-tert-butyl-N-methoxymethyl-6-methylacetanilide (table 26).

(4) 2,4-D (table 35).

(5) DNBP (table 36).

Oilseed and Fiber Crops

One or more broadleaved weeds and weed-grasses was controlled in one or more species in this crop group by preemergence treatment with the following herbicides:

(1) 2-chloro-N-isopropylacetanilide (table 24).

(2) 6-tert-butyl-2-chloro-o-acetotoluidide (table 25).

(3) 2-bromo-2'-tert-butyl-N-methoxymethyl-6-methylacetanilide (table 26).

(4) N-(3-trifluoromethylphenyl)-N',N'-dimethylurea (table 28).

(5) 2,4-dinitrophenyl-(2'-sec-butyl-4',6'-dinitrophenyl)carbo=nate (table 31).

(6) potassium azide (table 32).

(7) CIPC (table 34).

(8) DNBP (table 36).

The following herbicides applied preemergence controlled one or more broadleaved weeds but not weed-grasses in one or more of the oilseed and fiber crops:

(1) 2,4-dinitrophenyl-(2'-sec-butyl-4',6'-dinitrophenyl)carbo=nate (table 31).

(2) CIPC (table 34).

(3) 2,4-D (table 35).

The preemergence application of 1-(2-methylcyclohexyl)-3-phenyl=urea controlled one or more grasses but not broadleaved weeds in several of the oilseed and fiber crops included in these experiments (table 23).

Postemergence treatment with the following herbicides controlled one or more broadleaved weeds and weed-grasses in one or more of the oil-seed and fiber crops:

(1) N-(3-trifluoromethylphenyl)-N',N'-dimethylurea (table 28).

(2) potassium azide (table 32).

(3) DNBP (table 36).

One or more broadleaved weeds but not weed-grasses were controlled in one or more of the oilseed and fiber crops by postemergence treatments with the following herbicides:

(1) 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

(2) 6-tert-butyl-2-chloro-o-acetotoluidide (table 25).

(3) 2-bromo-2'-tert-butyl-N-methoxymethyl-6-methylacetanilide (table 26).

One or more weed-grasses but not broadleaved weeds was controlled in one or more of the oilseed and/or fiber crops by postemergence treatment with 2,4-dinitrophenyl-(2'-*sec*-butyl-4',6'-dinitrophenyl)carbonate (table 31).

Sugar Crops

Preemergence treatment with the following herbicides controlled one or more broadleaved weeds and weed-grasses in sugarbeets:

(1) 2-chloro-*N*-isopropylacetanilide (table 24).

(2) 6-*tert*-butyl-2-chloro-*o*-acetotoluidide (table 25).

(3) 2-bromo-2'-*tert*-butyl-*N*-methoxymethyl-6-methylacetanilide (table 26).

(4) potassium azide (table 32).

None of the chemicals included in these studies effectively controlled broadleaved weeds without controlling weed-grasses or weed-grasses without controlling broadleaved weeds.

Postemergence treatment with the following herbicides controlled one or more broadleaved weeds but not weed-grasses in sugarbeets:

(1) 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

(2) 6-*tert*-butyl-2-chloro-*o*-acetotoluidide (table 25).

(3) 2-bromo-2'-*tert*-butyl-*N*-methoxymethyl-6-methylacetanilide (table 26).

(4) CIPC (table 34).

Vegetable Crops

Preemergence treatment with the following herbicides resulted in the control of one or more broadleaved weeds and weed-grasses in one or more of the vegetable crops included in these studies:

(1) 2-chloro-*N*-isopropylacetanilide (table 24).

(2) 6-*tert*-butyl-2-chloro-*o*-acetotoluidide (table 25).

(3) 2-bromo-2'-<u>tert</u>-butyl-<u>N</u>-methoxymethyl-6-methylacetanilide (table 26).

(4) <u>N</u>-(3-trifluoromethylphenyl)-<u>N</u>',<u>N</u>'-dimethylurea (table 28).

(5) 2,4-dinitrophenyl-(2'-<u>sec</u>-butyl-4',6'-dinitrophenyl)carbo= nate (table 31).

(6) potassium azide (table 32).

(7) CIPC (table 34).

(8) DNBP (table 36).

One or more broadleaved weeds but not weed-grasses was controlled in one or more of the vegetable crops by preemergence application of CIPC, 2,4-D and DNBP (tables 34, 35 and 36).

One or more weed-grasses but not broadleaved weeds was controlled in one or more of the vegetable crops by preemergence applications of 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

Postemergence treatments with the following herbicides controlled one or more broadleaved weeds and weed-grasses in one or more of the vegetable crops included in these studies:

(1) <u>N</u>-(3-trifluoromethylphenyl)-<u>N</u>',<u>N</u>'-dimethylurea (table 28)

(2) 2,4-dinitrophenyl-(2'-<u>sec</u>-butyl-4',6'-dinitrophenyl)carbo= nate (table 31).

(3) potassium azide (table 32).

One or more broadleaved weeds but not weed-grasses was controlled in one or more vegetable crops by postemergence treatment with the following herbicides:

(1) 1-(2-methylcyclohexyl)-3-phenylurea (table 23).

(2) 6-<u>tert</u>-butyl-2-chloro-<u>o</u>-acetotoluidide (table 25).

(3) 2-bromo-2'-<u>tert</u>-butyl-<u>N</u>-methoxymethyl-6-methylacetanilide (table 26).

One or more weed-grasses but not broadleaved weeds was controlled in one or more of the vegetable crops by postemergence treatments with 3,4-dichlorobenzyl <u>N</u>-methylcarbamate (table 33).

Soil Sterilants

The pre- and postemergence herbicidal activity of the 5-bromo-3-*tert*-butyl-6-methyluracil and the 5-chloro-3-*tert*-butyl-6-methyl=uracil was sufficiently high to suggest their evaluation as soil sterilants.

Residual Activity of Herbicides

One hundred pounds per acre of 5-10-5 fertilizer was applied to the experimental areas. A mixture of rye and vetch was broadcast seeded and the areas were disked to a depth of 2 inches on September 24 to bioassay for residual activity of herbicides. The experimental areas were evaluated on November 6.

The following chart indicated the residual chemicals, the lowest application rates which resulted in decreased stand, and the percentage reduction in stand at that rate.

Chemical	Lowest Application Rate Affecting Stand	Stand Percent Reduction
5-bromo-3-*tert*-butyl-6-methyluracil (table 21)	1/2	90
5-chloro-3-*tert*-butyl-6-methyluracil (table 22)	1/2	95
6-*tert*-butyl-2-chloro-*o*-acetotoluidide (table 25)	4	50
N-(3-trifluoromethylphenyl)-*N*',*N*'-dimethylurea (table 28)	1	30
N-(*p*-bromophenyl)-*N*'-methyl-*N*'-methoxy=urea (table 1)	4	40
2-methoxy-4-isopropylamino-6-allylamino-*s*-triazine (table 9).	2	50
2-chloro-4-ethylamino-6-*sec*-butylamino-*s*-triazine (table 11).	2	30
2-chloro-4-ethylamino-6-*tert*-butylamino-*s*-triazine (table 12)	1	50

A List of Species and Varietal Names of Crops and Weeds

	Common Name	Scientific Name	Variety	Height of test species in inches at time of postemergence treatment: Preliminary	Secondary
1.	Alfalfa	Medicago sativa L.	Buffalo	3	4
2.	Birdsfoot trefoil	Lotus corniculatus L.	Italian	2	1
3.	Buckwheat	Fagopyrum esculentum Moench.	----------	12	15
4.	Cabbage	Brassica oleracea v. capitata L.	Late Flat Dutch	4	5
5.	Corn, Field	Zea Mays L.	US 13	13	14
6.	Corn, Sweet	Zea Mays v. rugosa Bonaf.	Iochief	-	14
7.	Cotton	Gossypium hirsutum L.	Coker 100 WR	5	4
8.	Cucumbers	Cucumis sativus L.	Long Marketer	4	7
9.	Flax	Linum usitatissimum L.	Bolley	7	7
10.	Lima beans	Phaseolus limensis Macf.	Baby Fordhook	5	6
11.	Oats	Auena sativa L.	Clint Land	-	10
12.	Onions	Allium sativum L.	Evergreen Bunching	-	3
13.	Peanuts	Arachis hypogaea L.	Spanish	3	2
14.	Peas	Pisum sativum L.	Thomas Laxton	-	12
15.	Red Clover	Trifolium pratense L.	Kenland	1	1
16.	Safflower	Carthamus tinctorius L.	Pacific 2	6	7
17.	Snapbeans	Phaseolus vulgaris L.	Top Crop	-	7
18.	Sorghum	Sorghum vulgare Pers.	Atlas	-	7
19.	Soybeans	Glycine max (L.) Merr.	Clark	7	7
20.	Squash	Cucurbita pepo L.	Early Yellow Summer Crookneck	9	10
21.	Sugar beets	Beta vulgaris L.	US 401	5	4
22.	Turnips	Brassica campestris L.	Purple Top White Globe	-	7
23.	Crabgrass	Digitaria sanguinalis (L.) Scop.	----------	4	5
24.	Ryegrass	Lolium multiflorum Lam.	Annual Italian	4	3
25.	Pigweed	Amaranthus retroflexus L.	----------	3	2
26.	Rape	Brassica napus L.	----------	-	8

TABLE 1.--Preliminary Logarithmic Rate Plot Results

Chemical	N-(p-bromophenyl)-N'-methyl-N'-methoxyurea							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	100	100	80	80	90	70	30	10
B-ft. trefoil	100	100	80	70	90	70	50	40
Buckwheat	100	100	60	10	70	60	40	30
Cabbage	100	100	90	80	100	90	70	50
Corn, field	20	20	10	0	30	20	10	10
Cotton	80	70	50	20	70	60	50	40
Cucumber	100	90	60	0	100	100	100	90
Flax	40	30	0	0	40	10	0	0
Lima beans	40	30	10	0	60	40	30	0
Peanuts	40	10	0	0	70	50	50	50
Red clover	100	100	100	90	100	80	70	60
Safflower	20	10	0	0	10	0	0	0
Soybeans	50	40	10	0	90	80	60	30
Squash	90	70	40	0	100	100	70	50
Sugarbeets	100	100	90	80	100	90	50	40
Crop Tox. Av.	72	65	45	29	75	62	46	33
Weeds								
Crabgrass	100	100	80	60	40	30	0	0
Ryegrass	80	40	0	0	60	50	30	20
Other Grasses	100	100	90	70	90	70	60	20
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	90	80	100	60	40	0
Other Brdlf.	100	100	100	100	90	60	40	30
Weed Tox. Av.	96	88	72	62	76	54	34	14
Total Tox. Av.	78	71	52	37	75	60	43	29

TABLE 2 .-- Preliminary Logarithmic Rate Plot Results

Chemical	4-dimethylaminothiocyanobenzene							
Application	Preemergence				Postemergence			
Rate lb/A [illegible]	8	4	2	1	8	4	2	1
Crops								
Alfalfa	60	60	30	20	50	40	20	0
B-ft. trefoil	100	100	90	90	80	70	70	50
Buckwheat	30	20	0	0	60	40	40	30
Cabbage	50	40	10	0	90	80	60	20
Corn, field	20	0	0	0	50	40	40	30
Cotton	20	20	0	0	90	70	20	20
Cucumber	60	50	30	0	100	90	70	50
Flax	30	20	0	0	100	90	50	20
Lima beans	20	10	0	0	80	70	40	0
Peanuts	50	40	10	10	30	10	0	0
Red clover	100	100	100	100	70	60	40	20
Safflower	30	20	0	0	90	70	50	40
Soybeans	10	10	0	0	80	70	40	10
Squash	30	20	10	0	80	50	40	30
Sugarbeets	40	30	10	0	80	60	20	20
Crop Tox. Av.	43	36	19	15	75	61	40	23
Weeds								
Crabgrass	100	100	90	70	0	0	0	0
Ryegrass	20	10	0	0	40	30	0	0
Other Grasses	100	90	80	60	0	0	0	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	90	80	60	60	40	40	30
Other Brdlf.	90	90	80	60	40	30	10	10
Weed Tox. Av.	82	76	66	50	28	20	10	8
Total Tox. Av.	53	46	31	24	64	51	33	19

TABLE 3.--Preliminary Logarithmic Rate Plot Results

Chemical	N-(3,4-dichlorophenyl)-O-N',N'-trimethylisourea							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	100	80	60	50	50	40	20	0
B-ft. trefoil	100	80	70	70	100	90	80	80
Buckwheat	90	60	30	0	90	80	60	60
Cabbage	100	90	60	50	90	90	70	60
Corn, field	20	0	0	0	60	40	40	40
Cotton	20	10	0	0	60	50	40	40
Cucumber	100	80	60	40	100	100	100	95
Flax	70	50	0	0	40	30	30	30
Lima beans	60	40	0	0	100	90	70	60
Peanuts	20	20	0	0	60	60	50	50
Red clover	100	100	100	100	100	100	90	80
Safflower	70	40	10	0	80	70	70	60
Soybeans	20	10	0	0	90	90	80	70
Squash	90	70	30	0	100	90	80	70
Sugarbeets	100	100	80	70	100	90	70	60
Crop Tox. Av.	71	55	33	25	81	74	63	57
Weeds								
Crabgrass	100	100	80	70	80	70	50	50
Ryegrass	50	30	0	0	70	50	30	20
Other Grasses	90	90	70	70	80	70	60	60
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	70	70	100	90	90	90
Other Brdlf.	80	70	70	70	90	70	50	30
Weed Tox. Av.	84	78	58	56	84	70	56	50
Total Tox. Av.	74	61	40	33	82	73	62	55

TABLE 4.-- Preliminary Logarithmic Rate Plot Results

Chemical	2,4-dichlorophenoxythioacetic acid amide							
Application	Preemergence				Postemergence			
Rate lb/A (	4	2	1	1/2	4	2=	1	1/2
Crops								
Alfalfa	100	100	100	100	100	100	80	60
B-ft. trefoil	100	100	100	90	100	100	100	90
Buckwheat	60	40	20	10	90	90	90	70
Cabbage	100	100	100	100	100	90	90	90
Corn, field	40	30	20	20	40	0	0	0
Cotton	90	90	70	70	95	90	90	80
Cucumber	100	100	90	90	90	90	80	70
Flax	80	80	60	40	70	50	20	10
Lima beans	70	70	70	60	100	90	90	80
Peanuts	10	0	0	0	70	60	50	40
Red clover	100	100	100	100	100	90	80	60
Safflower	90	80	60	50	100	100	95	95
Soybeans	80	70	70	60	100	100	90	90
Squash	90	70	70	70	90	80	70	60
Sugarbeets	100	90	90	60	100	95	95	90
Crop Tox. Av.	81	75	68	61	90	82	75	66
Weeds								
Crabgrass	100	90	70	70	30	0	0	0
Ryegrass	80	60	50	10	50	40	10	0
Other Grasses	100	100	90	80	10	0	0	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	100	100	90	90	60	50	40	40
Weed Tox. Av.	96	90	80	70	50	38	30	28
Total Tox. Av.	85	79	71	64	80	71	64	56

TABLE 5 .-- Preliminary Logarithmic Rate Plot Results

Chemical	1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
<u>Crops</u>								
Alfalfa	100	100	80	70	60	40	20	10
B-ft. trefoil	100	90	90	90	100	100	100	100
Buckwheat	100	100	90	80	100	90	80	70
Cabbage	100	100	100	100	100	100	100	90
Corn, field	70	70	60	60	70	60	50	50
Cotton	70	50	40	30	50	40	40	40
Cucumber	100	100	100	90	100	100	100	100
Flax	100	100	90	60	90	70	50	50
Lima beans	100	90	90	70	100	100	90	80
Peanuts	60	60	40	10	80	60	50	40
Red clover	100	100	100	100	100	100	100	90
Safflower	100	100	100	80	100	90	60	60
Soybeans	80	70	70	40	100	100	95	90
Squash	100	100	90	80	100	100	90	90
Sugarbeets	100	100	100	100	100	100	95	90
Crop Tox. Av.	92	89	83	71	90	83	75	70
<u>Weeds</u>								
Crabgrass	100	100	90	80	80	60	50	40
Ryegrass	100	90	60	50	90	80	50	30
Other Grasses	100	90	90	80	70	60	60	60
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	100	100	100	80	90	80	70	60
Weed Tox. Av.	100	96	88	78	86	76	66	58
Total Tox. Av.	94	91	84	73	89	82	73	67

TABLE 6.--Preliminary Logarithmic Rate Plot Results

Chemical	1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	80	70	50	20	60	60	50	10
B-ft. trefoil	100	80	60	20	100	100	100	90
Buckwheat	90	70	40	30	100	90	70	50
Cabbage	100	100	100	80	100	100	90	60
Corn, field	70	30	0	0	70	60	40	20
Cotton	80	70	50	30	100	90	70	60
Cucumber	100	100	90	70	100	90	80	60
Flax	70	50	40	30	80	60	50	40
Lima beans	70	40	0	0	100	95	70	50
Peanuts	70	60	50	50	90	80	60	40
Red clover	100	90	80	70	100	80	70	60
Safflower	60	50	40	40	80	70	60	50
Soybeans	80	60	20	20	100	90	80	70
Squash	90	80	60	50	100	90	80	60
Sugarbeets	90	80	60	50	80	70	50	40
Crop Tox. Av.	83	69	49	37	91	82	68	51
Weeds								
Crabgrass	90	70	50	30	50	40	30	30
Ryegrass	90	70	40	0	80	70	50	40
Other Grasses	100	80	70	60	50	40	40	40
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	80	70	50	100	90	70	40
Other Brdlf.	100	100	90	70	90	80	60	40
Weed Tox. Av.	96	80	64	42	74	64	50	38
Total Tox. Av.	87	72	53	39	87	77	64	48

TABLE 7 .-- Preliminary Logarithmic Rate Plot Results

Chemical	N-phenylcarbamid-2,6-dichlorobenzaldoxime							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	80	80	70	60	20	0	0	0
B-ft. trefoil	100	90	90	90	0	0	0	0
Buckwheat	100	70	30	0	20	10	0	0
Cabbage	100	100	90	80	10	0	0	0
Corn, field	0	0	0	0	30	0	0	0
Cotton	70	50	20	0	20	0	0	0
Cucumber	90	70	40	30	20	10	0	0
Flax	70	70	20	20	20	0	0	0
Lima beans	60	40	10	0	30	20	0	0
Peanuts	60	40	20	10	0	0	0	0
Red clover	100	100	100	100	20	0	0	0
Safflower	100	100	80	60	0	0	0	0
Soybeans	70	60	40	20	30	30	0	0
Squash	70	30	10	0	40	30	30	0
Sugarbeets	100	100	100	90	0	0	0	0
Crop Tox. Av.	78	67	48	38	17	7	2	0
Weeds								
Crabgrass	70	60	50	50	20	0	0	0
Ryegrass	100	100	100	90	30	20	10	0
Other Grasses	80	60	50	40	10	0	0	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	90	60	40	50	30	0	0
Other Brdlf.	90	80	70	60	30	10	0	0
Weed Tox. Av.	88	78	66	56	28	12	2	0
Total Tox. Av.	81	70	53	42	20	8	2	0

TABLE 8.-- Preliminary Logarithmic Rate Plot Results

Chemical	4-(2,6-dichlorophenyl)-1,3,5-oxathiazolone-2							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	100	100	90	80	40	30	0	0
B-ft. trefoil	100	100	80	80	30	20	0	0
Buckwheat	100	90	90	80	30	20	0	0
Cabbage	100	100	100	90	0	0	0	0
Corn, field	60	10	0	0	40	30	0	0
Cotton	80	80	60	30	30	10	0	0
Cucumber	100	100	80	50	90	70	70	60
Flax	90	80	50	50	0	0	0	0
Lima beans	30	10	0	0	20	10	0	0
Peanuts	50	40	20	10	40	20	0	0
Red clover	100	100	100	100	40	30	20	0
Safflower	100	100	90	80	30	20	0	0
Soybeans	60	40	20	10	60	50	40	20
Squash	90	90	60	40	70	60	20	0
Sugarbeets	100	100	100	90	90	60	40	20
Crop Tox. Av.	84	76	63	53	41	29	13	7
Weeds								
Crabgrass	80	70	70	60	10	0	0	0
Ryegrass	100	100	100	90	20	10	10	0
Other Grasses	90	90	70	60	20	0	0	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	90	80	70	40	30	10	0
Other Brdlf.	90	90	60	60	0	0	0	0
Weed Tox. Av.	92	88	76	68	18	8	4	0
Total Tox. Av.	86	79	66	57	35	24	11	5

TABLE 9 .-- Preliminary Logarithmic Rate Plot Results

Chemical	2-methoxy-4-isopropylamino-6-allylamino-s-triazine							
Application	Preemergence				Postemergence			
Rate lb/A ⁄	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	80	60	50	40	20	10	0
B-ft. trefoil	90	90	80	80	100	100	90	70
Buckwheat	50	20	0	0	70	50	10	0
Cabbage	100	90	80	70	80	70	50	40
Corn, field	40	10	0	0	30	10	0	0
Cotton	60	50	40	0	50	40	40	30
Cucumber	90	80	60	60	100	95	90	80
Flax	40	10	0	0	60	40	0	0
Lima beans	30	10	0	0	50	40	10	10
Peanuts	40	30	10	0	60	50	40	30
Red clover	100	100	100	100	80	60	40	10
Safflower	40	30	30	30	90	70	30	30
Soybeans	50	30	10	0	70	60	50	40
Squash	60	50	30	10	100	90	70	50
Sugarbeets	100	100	90	70	90	70	50	40
Crop Tox. Av.	66	52	39	31	71	58	39	29
Weeds								
Crabgrass	70	70	60	50	70	50	30	10
Ryegrass	50	20	0	0	40	20	10	0
Other Grasses	90	80	70	70	80	60	50	30
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	90	100	90	90	80
Other Brdlf.	100	80	70	70	80	60	40	10
Weed Tox. Av.	82	70	60	56	74	56	44	26
Total Tox. Av.	70	57	45	38	72	57	40	28

TABLE 10.-- Preliminary Logarithmic Rate Plot Results

Chemical	2-chloro-4-allylamino-6-(3-methoxypropylamino)-s-triazine							
Application	Preemergence				Postemergence			
Rate lb/A (	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	100	80	70	20	10	0	0
B-ft. trefoil	100	80	80	80	40	20	0	0
Buckwheat	100	90	90	80	50	40	40	30
Cabbage	90	90	90	80	20	10	0	0
Corn, field	70	70	70	60	50	40	40	30
Cotton	60	50	40	40	70	60	50	30
Cucumber	100	100	90	80	70	70	60	60
Flax	50	50	50	40	30	20	10	0
Lima beans	40	40	20	20	60	50	40	30
Peanuts	50	10	0	0	20	10	0	0
Red clover	100	100	100	100	40	30	10	0
Safflower	70	70	60	50	30	20	0	0
Soybeans	40	30	10	10	40	40	40	30
Squash	100	90	80	70	60	50	40	40
Sugarbeets	90	90	90	80	40	30	20	0
Crop Tox. Av.	77	71	63	57	43	33	23	17
Weeds								
Crabgrass	80	80	70	50	40	30	20	10
Ryegrass	60	60	40	20	40	30	20	0
Other Grasses	90	90	90	70	50	40	20	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	10	0	0	0
Other Brdlf.	90	80	60	50	0	0	0	0
Weed Tox. Av.	84	82	72	58	28	20	12	2
Total Tox. Av.	79	74	66	58	39	30	21	13

TABLE 11 .-- Preliminary Logarithmic Rate Plot Results

Chemical	2-chloro-4-ethylamino-6-sec-butylamino-s-triazine							
Application	Preemergence				Postemergence			
Rate lb/A (	8	4	2	1	NOT APPLIED			
Crops								
Alfalfa	100	100	100	100				
B-ft. trefoil	100	100	100	60				
Buckwheat	100	100	100	80				
Cabbage	100	100	100	90				
Corn, field	30	10	0	0				
Cotton	100	90	70	50				
Cucumber	100	100	100	90				
Flax	100	90	80	50				
Lima beans	100	90	80	40				
Peanuts	90	70	60	60				
Red clover	100	100	100	100				
Safflower	100	100	100	90				
Soybeans	100	90	60	30				
Squash	100	100	100	70				
Sugarbeets	100	100	100	100				
Crop Tox. Av.	95	89	83	67				
Weeds								
Crabgrass	80	80	70	60				
Ryegrass	100	95	70	40				
Other Grasses	100	100	90	90				
Mustard	-	-	-	-				
Pigweed	100	100	100	100				
Other Brdlf.	100	100	90	60				
Weed Tox. Av.	96	95	84	70				
Total Tox. Av.	95	91	84	68				

TABLE 12 .-- Preliminary Logarithmic Rate Plot Results

Chemical	2-chloro-4-ethylamino-6-tert-butylamino-s-triazine							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	100	100	100	90	80	80	70
B-ft. trefoil	100	100	100	100	80	70	70	60
Buckwheat	100	100	100	100	95	90	80	70
Cabbage	100	100	100	100	100	90	80	80
Corn, field	10	10	0	0	60	60	50	40
Cotton	90	70	60	50	70	70	70	70
Cucumber	100	100	100	100	100	100	100	90
Flax	100	100	100	100	100	100	90	70
Lima beans	100	100	80	80	90	80	80	70
Peanuts	90	80	80	50	100	90	90	80
Red clover	100	100	100	100	90	90	80	70
Safflower	100	100	100	100	100	100	100	90
Soybeans	100	90	70	70	100	90	80	70
Squash	100	100	100	90	90	80	70	60
Sugarbeets	100	100	100	100	95	90	90	90
Crop Tox. Av.	93	90	86	83	91	85	81	72
Weeds								
Crabgrass	90	80	70	60	30	20	0	0
Ryegrass	100	95	95	70	90	80	70	50
Other Grasses	100	100	100	90	30	20	0	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	40	20	0	0
Other Brdlf.	100	80	60	60	50	40	30	10
Weed Tox. Av.	98	91	85	76	48	36	20	12
Total Tox. Av.	94	90	86	81	80	73	66	57

TABLE 13 .-- Preliminary Logarithmic Rate Plot Results

Chemical	2-methylmercapto-4-ethylamino-6-tert-butylamino-s-triazine							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	100	100	70	100	100	100	60
B-ft. trefoil	100	100	80	50	100	100	100	90
Buckwheat	100	100	80	60	100	100	100	90
Cabbage	100	70	60	50	100	100	100	80
Corn, field	10	0	0	0	80	80	70	60
Cotton	100	90	70	60	100	100	100	80
Cucumber	100	100	80	60	100	100	100	100
Flax	100	100	60	40	100	100	100	80
Lima beans	100	60	40	10	100	100	100	80
Peanuts	60	30	10	0	100	100	100	80
Red clover	100	100	100	100	100	100	100	80
Safflower	100	100	70	70	100	100	100	90
Soybeans	100	70	60	30	100	100	100	70
Squash	100	90	60	50	100	100	100	90
Sugarbeets	100	100	100	100	100	100	100	100
Crop Tox. Av.	91	81	65	50	99	99	98	82
Weeds								
Crabgrass	100	100	80	60	100	100	90	60
Ryegrass	80	50	40	40	90	80	60	50
Other Grasses	100	100	100	90	90	90	90	80
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	90	90	60	50	100	90	90	80
Weed Tox. Av.	94	88	76	68	96	92	86	74
Total Tox. Av.	92	83	68	55	98	97	95	80

TABLE 14.-- Preliminary Logarithmic Rate Plot Results

Chemical	2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	70	50	20	10	50	30	10	0
B-ft. trefoil	100	100	100	90	100	100	70	50
Buckwheat	30	10	0	0	100	100	90	70
Cabbage	40	20	0	0	100	95	70	30
Corn, field	20	10	0	0	70	50	40	10
Cotton	40	30	10	0	70	50	40	40
Cucumber	50	40	20	10	100	100	100	100
Flax	30	10	0	0	80	70	50	10
Lima beans	20	10	10	0	100	90	70	40
Peanuts	50	30	20	0	70	50	40	30
Red clover	100	100	80	60	100	100	80	60
Safflower	30	20	10	10	100	90	60	40
Soybeans	30	10	0	0	100	90	60	10
Squash	30	10	0	0	100	100	100	90
Sugarbeets	100	100	80	60	100	100	100	90
Crop Tox. Av.	49	37	23	16	89	81	65	45
Weeds								
Crabgrass	80	80	70	50	90	60	40	10
Ryegrass	40	10	0	0	50	30	20	10
Other Grasses	90	90	90	80	100	80	60	40
Mustard	-	-	-	-	-	-	-	-
Pigweed	90	70	60	50	100	100	100	80
Other Brdlf.	80	70	60	40	100	90	70	60
Weed Tox. Av.	76	64	56	44	88	72	58	40
Total Tox. Av.	56	44	32	23	89	79	64	44

TABLE 15.-- Preliminary Logarithmic Rate Plot Results

Chemical	dodecylaminetrichloroacetate							
Application	Preemergence				Postemergence			
Rate lb/A (	8	4	2	1	8	4	2	1
Crops								
Alfalfa	30	10	0	0	20	10	0	0
B-ft. trefoil	30	20	0	0	20	0	0	0
Buckwheat	0	0	0	0	30	20	20	20
Cabbage	20	10	0	0	70	60	30	0
Corn, field	0	0	0	0	40	30	0	0
Cotton	40	10	0	0	30	20	0	0
Cucumber	40	30	10	0	70	70	60	50
Flax	30	20	0	0	90	60	20	10
Lima beans	60	60	50	40	60	50	50	50
Peanuts	40	30	20	10	30	10	0	0
Red clover	30	10	0	0	30	20	0	0
Safflower	20	10	0	0	70	60	50	40
Soybeans	70	70	70	60	60	60	60	60
Squash	30	10	10	10	30	10	0	0
Sugarbeets	10	10	0	0	20	0	0	0
Crop Tox. Av.	30	20	11	8	45	32	19	15
Weeds								
Crabgrass	40	20	10	0	20	10	0	0
Ryegrass	30	30	10	0	20	0	0	0
Other Grasses	40	20	10	0	0	0	0	0
Mustard	-	-	-	-	-	-	-	-
Pigweed	0	0	0	0	0	0	0	0
Other Brdlf.	0	0	0	0	0	0	0	0
Weed Tox. Av.	22	14	6	0	8	2	0	0
Total Tox. Av.	28	19	10	6	36	25	15	12

TABLE 16.--Preliminary Logarithmic Rate Plot Results

Chemical	2,4-dichlorophenoxyacetic acid alkanolamine salt							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	100	100	100	100	90	90	80
B-ft. trefoil	100	100	100	90	100	100	100	100
Buckwheat	90	90	70	70	90	90	90	80
Cabbage	100	100	100	100	100	100	95	95
Corn, field	90	70	70	70	40	30	30	30
Cotton	100	100	100	90	100	100	100	100
Cucumber	100	100	100	100	80	80	70	70
Flax	100	90	80	80	90	80	70	50
Lima beans	100	90	80	70	100	100	100	90
Peanuts	100	90	90	80	50	40	40	30
Red clover	100	100	100	100	100	100	100	90
Safflower	100	100	90	90	100	100	100	100
Soybeans	100	100	80	80	100	100	100	90
Squash	100	100	100	100	80	70	70	70
Sugarbeets	100	100	100	100	100	100	100	100
Crop Tox. Av.	99	95	91	88	89	85	84	78
Weeds								
Crabgrass	100	100	90	90	50	30	10	10
Ryegrass	90	90	90	90	80	70	50	40
Other Grasses	100	100	100	100	60	50	50	50
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	100	90	90	90	90	80	70	50
Weed Tox. Av.	98	96	94	94	76	66	56	50
Total Tox. Av.	99	96	92	90	86	81	77	71

TABLE 17.--Preliminary Logarithmic Rate Plot Results

Chemical	4,6-dinitro-o-sec-butylphenol alkanolamine salt							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	70	60	20	0	100	100	90	70
B-ft. trefoil	100	100	90	80	100	100	100	80
Buckwheat	90	80	70	60	100	100	100	90
Cabbage	100	100	100	90	100	100	100	100
Corn, field	80	70	70	70	80	70	70	60
Cotton	60	60	50	50	100	90	90	80
Cucumber	70	60	60	60	100	100	100	100
Flax	60	30	20	20	100	100	90	80
Lima beans	40	30	0	0	100	90	80	60
Peanuts	30	10	0	0	40	30	20	0
Red clover	40	20	10	0	100	100	90	80
Safflower	100	90	70	50	100	100	100	100
Soybeans	40	20	10	0	100	100	90	80
Squash	80	70	60	60	100	100	100	95
Sugarbeets	100	100	100	90	100	100	100	100
Crop Tox. Av.	71	60	49	42	95	92	88	78
Weeds								
Crabgrass	90	70	60	50	80	70	60	40
Ryegrass	70	60	40	40	90	90	70	70
Other Grasses	90	80	60	60	90	80	70	50
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	100	90	90	80	100	100	90	80
Weed Tox. Av.	90	80	70	66	92	88	78	68
Total Tox. Av.	76	65	54	48	94	91	86	76

TABLE 18.-- Preliminary Logarithmic Rate Plot Results

Chemical	isopropyl N-(3-chlorophenyl)carbamate							
Application	Preemergence				Postemergence			
Rate lb/A (	8	4	2	1	8	4	2	1
Crops								
Alfalfa	60	30	10	0	40	20	0	0
B-ft. trefoil	100	100	100	100	90	40	0	0
Buckwheat	100	100	100	100	80	70	50	40
Cabbage	90	80	70	70	70	60	50	30
Corn, field	50	30	30	30	40	40	30	0
Cotton	30	10	0	0	40	30	30	30
Cucumber	80	80	80	80	90	80	70	70
Flax	80	70	70	60	60	50	30	30
Lima beans	20	10	0	0	70	70	50	30
Peanuts	20	0	0	0	40	20	0	0
Red clover	60	30	0	0	30	10	0	0
Safflower	50	40	30	30	40	30	0	0
Soybeans	20	10	0	0	70	70	50	30
Squash	20	10	0	0	40	30	10	0
Sugarbeets	90	80	50	0	20	10	0	0
Crop Tox. Av.	58	45	36	31	55	42	25	17
Weeds								
Crabgrass	100	90	90	80	60	20	10	0
Ryegrass	90	90	80	80	60	50	40	40
Other Grasses	100	100	100	100	80	70	60	40
Mustard	-	-	-	-	-	-	-	-
Pigweed	100	100	100	100	70	40	10	0
Other Brdlf.	100	90	90	90	60	30	10	0
Weed Tox. Av.	98	94	92	90	66	42	26	16
Total Tox. Av.	68	58	50	46	58	42	25	17

TABLE 19.--Summary table of preliminary preemergence logarithmic rate plots showing chemicals tolerated by crops and their control of broadleaf weeds and weed-grasses. 1/

	Chemical	N-(p-bromophenyl)-N'-methyl-N'-methoxyurea Table (1)		4-dimethylaminothiocyanobenzene (2)		N-(3,4-dichlorophenyl)-O-N',N'-trimethylisourea (3)		2,4-dichlorophenoxythioacetic acid amide (4)		1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2 (5)		1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 (6)		N-phenylcarbamid-2,6-dichlorobenzaldoxime (7)		4-(2,6-dichlorophenyl)-1,3,5-oxathiazolone-2 (8)		2-methoxy-4-isopropylamino-6-allylamino-s-triazine (9)	
	Weeds	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops																		
Small Seeded Legume Crops	Alfalfa			X	X							X							
	B-ft. trefoil											X							
	Red clover																		
Cereals and Forage Crops	Buckwheat	X	X	X	X	X	X	X	X			X		X	X			X	X
	Corn, field	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X
Oilseed and Fiber Crops	Cotton	X	X	X	X	X	X			X	X	X		X	X	X	X	X	X
	Flax	X	X	X	X	X	X					X		X	X			X	X
	Peanuts	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X
	Safflower	X	X	X	X	X	X											X	X
	Soybeans	X	X	X	X	X	X					X	X		X	X	X	X	X
Sugar Crops	Sugarbeets			X	X														
Vegetable Crops	Cabbage			X	X														
	Cucumber	X	X	X	X										X				
	Lima beans	X	X	X	X	X	X					X	X	X	X	X	X	X	X
	Squash	X	X	X	X	X	X							X	X			X	X

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

Table 19.--Continued

	Chemical	2-chloro-4-allylamino-6-(3-methoxypropylamino)-s-triazine (10)		2-chloro-4-ethylamino-6-sec-butylamino-s-triazine (11)		2-chloro-4-ethylamino-6-tert-butylamino-s-triazine (12)		2-methylmercapto-4-ethylamino-6-tert-butylamino-s-triazine (13)		2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (14)		dodecylaminetrichloroacetate (15)		2,4-dichlorophenoxyacetic acid alkanolamine salt (16)		4,6-dinitro-o-sec-butylphenol alkanolamine salt (17)		isopropyl N-(3-chlorophenyl) carbamate (18)	
	Weeds	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops											Relatively Inactive		Very active, not tolerated by test species on rates used.					
Small Seeded Legume Crops	Alfalfa										X					X		X	X
	B-ft. trefoil																		
	Red clover															X	X	X	X
Cereals and Forage Crops	Buckwheat									X	X								
	Corn, field			X	X	X	X	X	X	X	X							X	X
Oilseed and Fiber Crops	Cotton									X	X							X	X
	Flax									X	X					X	X		
	Peanuts	X	X					X	X	X	X					X	X	X	X
	Safflower									X	X							X	X
	Soybeans	X	X	X	X			X	X	X	X					X	X	X	X
Sugar Crops	Sugarbeets																	X	X
Vegetable Crops	Cabbage									X	X								
	Cucumber										X								
	Lima beans	X	X					X	X	X	X					X	X	X	X
	Squash									X	X							X	X

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

TABLE 20.--Summary table of preliminary postemergence logarithmic rate plots showing chemicals tolerated by crops and their control of broadleaf weeds and weed-grasses. 1/

Chemical		N-(p-bromophenyl)-N'-methyl-N'-methoxyurea (Table 1)		4-dimethylaminothiocyanobenzene (2)		N-(3,4-dichlorophenyl)-O-N',N-trimethylisourea (3)		2,4-dichlorophenoxythioacetic acid amide (4)		1-[3,4-dichlorophenyl]-3,5-dimethylhexahydro-1,3,5-triazinone-2 (5)		1-phenyl-3-methyl-5-allyl hexahydro-1,3,5-triazinone-2 (6)		N-phenylcarbamid-2,6-dichlorobenzaldoxime (7)		4-(2,6-dichlorophenyl)-1,3,5-oxathiazolone-2 (8)		2-methoxy-4-isopropylamino-6-allylamino-s-triazine (9)	
Weeds		Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
Crops				Weeds not controlled at level tolerated by crops.								Very active, not tolerated by test species at rate used.		Relatively inactive		Relatively inactive			
Small Seeded Legume Crops	Alfalfa					X				X								X	
	B-ft. trefoil																		
	Red clover																	X	
Cereals and Forage Crops	Buckwheat																	X	
	Corn, field	X	X					X										X	X
Oilseed and Fiber Crops	Cotton																	X	
	Flax					X	X	X										X	
	Peanuts																	X	
	Safflower	X	X															X	
	Soybeans																		
Sugar Crops	Sugarbeets																		
Vegetable Crops	Cabbage																		
	Cucumber																		
	Lima beans																	X	
	Squash																		

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

	Chemical	2-chloro-4-allylamino-6-(3-methoxypropylamino)-s-triazine (10)		2-chloro-4-ethylamino-6-sec-butylamino-s-triazine (11)		2-chloro-4-ethylamino-6-tert-butylamino-s-triazine (12)		2-methylmercapto-4-ethylamino-6-tert-butylamino-s-triazine (13)		2-ethylamino-4-(3-methoxypropylamino)-6-methylthio-s-triazine (14)		dodecylaminetrichloroacetate (15)		2,4-dichlorophenoxyacetic acid alkanolamine salt (16)		4,6-dinitro-o-sec-butylphenol alkanolamine salt (17)		isopropyl N-(3-chlorophenyl) cabamate (18)	
	Weeds	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops	Relatively inactive		not applied		Very active, not tolerated by test species at rates used.		Very active, not tolerated by test species at rates used.				Relatively inactive							
Small Seeded Legume Crops	Alfalfa									X	X								X
	B-ft. trefoil																		
	Red clover																	X	X
Cereals and Forage Crops	Buckwheat																		
	Corn, field									X				X	X				
Oilseed and Fiber Crops	Cotton																		X
	Flax									X									
	Peanuts									X				X		X	X		X
	Safflower																		X
	Soybeans										X								
Sugar Crops	Sugarbeets																	X	X
Vegetable Crops	Cabbage									X									
	Cucumber																		
	Lima beans																		
	Squash																		X

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

TABLE 21 .-- Secondary Logarithmic Rate Plot Results

Chemical	5-bromo-3-*tert*-butyl-6-methyluracil							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	100	100	100	100	100	100	100	100
B-ft. trefoil	100	100	100	100	100	100	100	100
Buckwheat	100	100	100	100	100	100	100	100
Cabbage	100	100	100	90	100	100	100	90
Corn, field	100	100	100	70	100	100	80	70
Corn, sweet	100	100	100	90	100	100	90	90
Cotton	100	100	100	90	100	100	100	100
Cucumbers	100	100	100	100	100	100	100	100
Flax	100	90	70	70	100	100	100	70
Lima beans	100	100	90	70	100	100	90	80
Oats	100	100	100	100	100	100	90	80
Onions	100	100	100	100	100	100	100	100
Peanuts	100	90	80	80	90	80	60	50
Peas	100	100	80	60	100	100	90	80
Red Clover	100	100	100	100	100	100	100	100
Safflower	100	90	70	50	100	100	100	90
Snapbeans	100	100	100	80	100	100	90	90
Sorghum	90	90	70	60	100	100	90	80
Soybeans	100	100	100	90	100	100	100	100
Squash	100	100	100	90	100	100	100	100
Sugarbeets	100	100	100	100	100	100	100	100
Turnips	100	100	100	100	100	100	100	100
Crop Tox. Av.	100	98	94	86	100	99	95	90
Weeds								
Crabgrass	100	100	100	100	100	100	60	40
Ryegrass	100	100	100	100	100	100	100	100
Other Grasses	90	80	75	75	80	70	50	30
Mustard	100	100	100	100	100	100	100	95
Pigweed	100	100	100	80	100	100	100	100
Other Brdlf.	100	100	100	100	100	100	100	100
Weed Tox. Av.	98	97	96	93	97	95	85	78
Total Tox. Av.	99	98	94	87	99	98	93	87

TABLE2 2 .-- Secondary Logarithmic Rate Plot Results

Chemical	5-chloro-3-tert-butyl-6-methyluracil							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	100	100	100	90	100	100	100	90
B-ft. trefoil	100	100	100	100	100	100	100	100
Buckwheat	100	100	100	100	100	100	100	100
Cabbage	100	100	100	95	100	100	100	100
Corn, field	100	90	80	70	90	80	70	50
Corn, sweet	100	100	90	70	100	95	90	80
Cotton	100	100	100	90	100	100	100	100
Cucumbers	100	100	100	100	100	100	100	100
Flax	100	100	90	70	100	100	100	90
Lima beans	100	90	80	40	95	95	95	80
Oats	100	100	100	90	100	100	90	90
Onions	100	100	100	100	100	100	100	100
Peanuts	100	90	50	40	90	80	50	40
Peas	100	100	80	60	100	95	90	80
Red Clover	100	100	100	100	100	100	100	100
Safflower	100	100	70	40	100	100	100	90
Snapbeans	100	100	80	70	100	100	90	80
Sorghum	100	90	70	40	95	95	90	80
Soybeans	100	100	90	90	100	100	100	100
Squash	100	100	100	90	100	100	100	100
Sugarbeets	100	100	100	100	100	100	100	100
Turnips	100	100	100	100	100	100	100	100
Crop Tox. Av.	100	98	90	79	99	97	94	89
Weeds								
Crabgrass	100	100	100	100	100	90	70	60
Ryegrass	100	100	100	100	100	100	100	100
Other Grasses	80	80	80	70	90	80	60	40
Mustard	100	100	100	100	100	100	100	90
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	100	100	90	60	100	100	100	90
Weed Tox. Av.	97	97	95	88	98	95	88	80
Total Tox. Av.	99	98	91	81	99	97	93	87

TABLE 23 .-- Secondary Logarithmic Rate Plot Results

Chemical	1-(2-methylcyclohexyl)-3-phenylurea							
Application	Preemergence				Postemergence			
Rate lb/A _(	8	4	2	1	8	4	2	1
Crops								
Alfalfa	20	10	0	0	20	10	0	0
B-ft. trefoil	50	40	0	0	30	10	0	0
Buckwheat	50	0	0	0	10	0	0	0
Cabbage	30	20	0	0	20	10	0	0
Corn, field	0	0	0	0	0	0	0	0
Corn, sweet	10	0	0	0	20	10	0	0
Cotton	20	0	0	0	40	20	10	10
Cucumbers	20	10	0	0	30	10	0	0
Flax	0	0	0	0	0	0	0	0
Lima beans	0	0	0	0	40	10	0	0
Oats	0	0	0	0	30	20	10	0
Onions	0	0	0	0	100	60	30	0
Peanuts	20	10	0	0	10	0	0	0
Peas	40	30	0	0	30	20	0	0
Red Clover	50	40	0	0	30	10	0	0
Safflower	30	20	0	0	40	20	10	0
Snapbeans	0	0	0	0	40	10	0	0
Sorghum	40	30	10	0	50	20	0	0
Soybeans	20	0	0	0	20	10	0	0
Squash	20	0	0	0	20	10	0	0
Sugarbeets	40	40	0	0	20	10	0	0
Turnips	30	0	0	0	40	30	10	0
Crop Tox. Av.	22	11	0	0	29	14	3	0
Weeds								
Crabgrass	70	50	30	30	30	20	0	0
Ryegrass	0	0	0	0	40	20	10	0
Other Grasses	20	0	0	0	30	20	0	0
Mustard	30	10	0	0	60	20	0	0
Pigweed	20	10	0	0	70	60	30	10
Other Brdlf.	30	10	0	0	50	30	10	0
Weed Tox. Av.	28	13	5	5	47	28	8	2
Total Tox. Av.	24	12	1	1	33	17	4	1

TABLE 24.-- Secondary Logarithmic Rate Plot Results

Chemical	2-chloro-N-isopropylacetanilide							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	70	60	50	50	30	20	10	0
B-ft. trefoil	100	100	80	60	30	0	0	0
Buckwheat	50	10	0	0	20	0	0	0
Cabbage	10	0	0	0	0	0	0	0
Corn, field	20	10	0	0	30	0	0	0
Corn, sweet	40	10	10	10	40	10	0	0
Cotton	40	30	20	20	30	10	0	0
Cucumbers	10	0	0	0	20	10	0	0
Flax	40	30	30	20	20	0	0	0
Lima beans	20	10	10	0	40	10	0	0
Oats	20	0	0	0	0	0	0	0
Onions	20	10	10	0	10	0	0	0
Peanuts	20	10	0	0	10	0	0	0
Peas	20	20	20	20	20	10	0	0
Red Clover	100	100	100	100	20	0	0	0
Safflower	20	10	10	10	10	0	0	0
Snapbeans	0	0	0	0	20	10	10	0
Sorghum	10	0	0	0	0	0	0	0
Soybeans	10	0	0	0	10	0	0	0
Squash	0	0	0	0	0	0	0	0
Sugarbeets	20	10	10	10	30	20	0	0
Turnips	0	0	0	0	0	0	0	0
Crop Tox. Av.	29	19	16	14	18	5	1	0
Weeds								
Crabgrass	95	80	60	50	50	20	10	0
Ryegrass	100	70	70	60	40	10	0	0
Other Grasses	90	80	70	60	50	40	10	0
Mustard	30	10	0	0	0	0	0	0
Pigweed	90	80	60	40	40	10	0	0
Other Brdlf.	95	80	60	50	0	0	0	0
Weed Tox. Av.	83	67	53	43	30	13	3	0
Total Tox. Av.	41	29	24	20	20	6	1	0

TABLE 25 .-- Secondary Logarithmic Rate Plot Results

Chemical	6-tert-butyl-2-chloro-o-acetotoluidide							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	100	100	80	50	40	30	10
B-ft. trefoil	100	100	100	100	100	100	100	100
Buckwheat	100	100	20	30	20	0	0	0
Cabbage	90	90	50	10	40	30	20	10
Corn, field	90	90	90	70	60	50	40	20
Corn, sweet	90	90	90	90	-	-	-	-
Cotton	100	10	60	40	60	40	40	20
Cucumbers	100	90	70	60	50	40	40	30
Flax	100	90	60	30	20	10	0	0
Lima beans	90	90	60	60	60	40	30	20
Oats	90	90	80	60	-	-	-	-
Onions	100	100	100	80	-	-	-	-
Peanuts	100	100	90	60	60	50	40	30
Peas	70	60	40	10	-	-	-	-
Red Clover	100	100	100	100	100	100	80	70
Safflower	90	70	10	10	30	10	10	0
Snapbeans	90	80	50	40	-	-	-	-
Sorghum	90	80	70	50	-	-	-	-
Soybeans	90	90	70	60	70	60	50	40
Squash	100	70	40	0	50	20	20	10
Sugarbeets	80	70	40	10	40	20	0	0
Turnips	100	90	50	0	-	-	-	-
Crop Tox. Av.	94	84	65	48	54	41	33	24
Weeds								
Crabgrass	100	100	70	70	50	30	10	0
Ryegrass	100	100	100	100	50	30	30	20
Other Grasses	100	100	80	70	50	30	0	0
Mustard	90	80	50	30	-	-	-	-
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	100	100	80	80	30	10	10	0
Weed Tox. Av.	98	97	80	75	56	40	30	24
Total Tox. Av.	95	87	69	54	55	41	33	24

TABLE 26.-- Secondary Logarithmic Rate Plot Results

Chemical	2-bromo-2'-tert-butyl-N-methoxymethyl-6-methylacetanilide							
Application	Preemergence				Postemergence			
Rate lb/A ⁄	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	100	80	80	50	30	10	0
B-ft. trefoil	100	100	100	100	60	50	30	10
Buckwheat	80	50	0	0	30	10	0	0
Cabbage	90	70	50	30	40	10	0	0
Corn, field	10	0	0	0	10	0	0	0
Corn, sweet	50	10	10	0	20	10	0	0
Cotton	60	40	20	20	30	10	0	0
Cucumbers	100	100	95	80	50	40	30	10
Flax	90	70	40	30	10	0	0	0
Lima beans	70	70	60	60	40	20	10	0
Oats	80	80	70	20	10	0	0	0
Onions	100	90	70	50	40	20	0	0
Peanuts	60	40	20	20	50	30	10	0
Peas	60	60	30	20	30	20	0	0
Red Clover	100	100	100	100	100	80	50	40
Safflower	0	0	0	0	40	20	10	0
Snapbeans	75	60	20	20	40	30	10	0
Sorghum	50	40	20	10	20	0	0	0
Soybeans	70	70	60	40	30	10	0	0
Squash	90	90	80	60	40	30	10	0
Sugarbeets	90	60	60	10	30	20	0	0
Turnips	100	90	60	30	0	0	0	0
Crop Tox. Av.	74	63	48	35	35	20	8	3
Weeds								
Crabgrass	95	80	60	40	40	30	20	20
Ryegrass	100	100	90	90	50	30	10	0
Other Grasses	90	80	60	50	50	30	20	0
Mustard	100	90	60	30	30	20	10	10
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	90	90	60	40	40	20	0	0
Weed Tox. Av.	96	90	72	58	52	38	27	22
Total Tox. Av.	79	69	53	40	39	24	12	7

TABLE 27.--Secondary Logarithmic Rate Plot Results

Chemical	N-4-(p-chlorophenoxy)-phenyl-N',N'-dimethylurea							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	20	0	0	0	10	0	0	0
B-ft. trefoil	0	0	0	0	90	80	60	50
Buckwheat	0	0	0	0	80	70	50	50
Cabbage	20	0	0	0	90	70	50	40
Corn, field	0	0	0	0	50	40	20	10
Corn, sweet	0	0	0	0	60	50	40	10
Cotton	10	0	0	0	100	90	80	50
Cucumbers	30	20	0	0	100	100	100	100
Flax	0	0	0	0	50	40	40	20
Lima beans	0	0	0	0	40	30	30	20
Oats	0	0	0	0	50	40	20	0
Onions	0	0	0	0	30	10	0	0
Peanuts	0	0	0	0	50	40	30	10
Peas	0	0	0	0	40	30	10	0
Red Clover	0	0	0	0	100	90	70	60
Safflower	0	0	0	0	70	60	60	50
Snapbeans	20	0	0	0	40	30	10	0
Sorghum	0	0	0	0	70	60	40	20
Soybeans	0	0	0	0	40	20	10	0
Squash	0	0	0	0	40	30	20	0
Sugarbeets	20	0	0	0	100	100	100	100
Turnips	50	30	0	0	100	80	60	50
Crop Tox. Av.	8	2	0	0	64	53	41	29
Weeds								
Crabgrass	0	0	0	0	10	0	0	0
Ryegrass	0	0	0	0	0	0	0	0
Other Grasses	0	0	0	0	30	20	0	0
Mustard	0	0	0	0	20	0	0	0
Pigweed	0	0	0	0	0	0	0	0
Other Brdlf.	0	0	0	0	10	0	0	0
Weed Tox. Av.	0	0	0	0	12	3	0	0
Total Tox. Av.	6	2	0	0	53	42	32	23

TABLE 28 .-- Secondary Logarithmic Rate Plot Results

Chemical	N-(3-trifluoromethylphenyl)-N',N'-dimethylurea							
Application	Preemergence				Postemergence			
Rate lb/A	4	2	1	1/2	4	2	1	1/2
Crops								
Alfalfa	100	90	50	45	70	60	40	20
B-ft. trefoil	100	100	60	60	100	100	80	40
Buckwheat	100	90	50	40	90	80	60	40
Cabbage	90	70	60	50	100	100	90	70
Corn, field	80	20	0	0	40	10	0	0
Corn, sweet	70	40	30	10	40	30	20	10
Cotton	50	30	20	0	30	10	0	0
Cucumbers	90	70	30	10	100	100	100	100
Flax	50	30	20	0	40	20	0	0
Lima beans	30	20	0	0	100	80	50	40
Oats	70	60	50	10	30	10	0	0
Onions	100	80	60	30	100	80	70	50
Peanuts	100	70	50	20	70	60	40	20
Peas	40	30	10	0	100	80	60	40
Red Clover	100	100	70	70	100	100	100	100
Safflower	60	40	30	0	100	90	70	60
Snapbeans	50	40	20	0	100	90	60	40
Sorghum	50	10	10	0	50	30	20	0
Soybeans	50	30	20	0	100	95	60	40
Squash	70	50	40	0	100	100	50	30
Sugarbeets	90	80	60	40	100	80	70	50
Turnips	60	50	35	20	95	90	75	60
Crop Tox. Av.	73	55	35	18	80	68	51	37
Weeds								
Crabgrass	70	50	40	20	20	10	0	0
Ryegrass	100	100	40	20	100	100	100	100
Other Grasses	60	50	30	10	50	30	10	0
Mustard	80	60	60	10	90	80	70	50
Pigweed	100	100	50	50	100	100	100	100
Other Brdlf.	70	60	30	10	50	40	10	0
Weed Tox. Av.	80	70	42	20	68	60	48	42
Total Tox. Av.	74	58	37	19	77	66	50	38

TABLE 29.-- Secondary Logarithmic Rate Plot Results

Chemical	N-tert-butylanaline hydrochloride							
Application	Preemergence				Postemergence			
Rate lb/A (	8	4	2	1	8	4	2	1
Crops								
Alfalfa	50	40	20	20	30	10	0	0
B-ft. trefoil	20	0	0	0	40	40	20	0
Buckwheat	0	0	0	0	0	0	0	0
Cabbage	30	10	10	0	30	10	0	0
Corn, field	0	0	0	0	20	10	0	0
Corn, sweet	0	0	0	0	40	30	20	0
Cotton	0	0	0	0	40	20	0	0
Cucumbers	10	0	0	0	0	0	0	0
Flax	30	10	10	0	30	20	0	0
Lima beans	40	20	10	0	30	10	0	0
Oats	20	0	0	0	40	20	0	0
Onions	40	20	10	0	40	30	10	0
Peanuts	0	0	0	0	0	0	0	0
Peas	30	10	0	0	30	20	10	0
Red Clover	20	0	0	0	40	30	10	0
Safflower	20	0	0	0	50	50	40	40
Snapbeans	30	10	0	0	40	20	0	0
Sorghum	0	0	0	0	40	20	0	0
Soybeans	10	0	0	0	10	0	0	0
Squash	10	0	0	0	30	10	0	0
Sugarbeets	30	10	10	10	60	50	30	20
Turnips	30	0	0	0	40	30	10	0
Crop Tox. Av.	19	6	3	1	31	20	7	3
Weeds								
Crabgrass	10	0	0	0	30	20	10	0
Ryegrass	0	0	0	0	0	0	0	0
Other Grasses	10	0	0	0	20	10	0	0
Mustard	60	50	30	10	40	10	0	0
Pigweed	0	0	0	0	40	0	0	0
Other Brdlf.	0	0	0	0	40	30	10	0
Weed Tox. Av.	13	8	5	2	28	15	3	0
Total Tox. Av.	18	6	4	1	30	19	6	2

TABLE 30.-- Secondary Logarithmic Rate Plot Results

Chemical	alpha-carboisobutoxyethyl N-(3-chlorophenyl)carbamate							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	20	10	0	0	30	10	10	0
B-ft. trefoil	0	0	0	0	50	50	40	30
Buckwheat	10	0	0	0	50	40	40	40
Cabbage	20	0	0	0	30	10	0	0
Corn, field	20	0	0	0	80	70	60	50
Corn, sweet	20	0	0	0	90	80	70	50
Cotton	20	0	0	0	50	40	20	0
Cucumbers	0	0	0	0	30	10	0	0
Flax	0	0	0	0	40	30	20	10
Lima beans	0	0	0	0	30	10	0	0
Oats	0	0	0	0	60	30	10	0
Onions	0	0	0	0	30	20	0	0
Peanuts	0	0	0	0	0	0	0	0
Peas	0	0	0	0	0	0	0	0
Red Clover	0	0	0	0	50	40	20	10
Safflower	20	10	0	0	0	0	0	0
Snapbeans	30	20	0	0	20	10	0	0
Sorghum	0	0	0	0	50	30	10	0
Soybeans	30	0	0	0	0	0	0	0
Squash	0	0	0	0	10	0	0	0
Sugarbeets	0	0	0	0	60	40	35	30
Turnips	0	0	0	0	70	60	50	40
Crop Tox. Av.	9	2	0	0	38	26	18	12
Weeds								
Crabgrass	10	0	0	0	30	20	0	0
Ryegrass	0	0	0	0	20	10	10	0
Other Grasses	20	10	0	0	30	10	0	0
Mustard	30	0	0	0	40	20	20	10
Pigweed	0	0	0	0	50	30	20	0
Other Brdlf.	0	0	0	0	0	0	0	0
Weed Tox. Av.	10	2	0	0	28	15	8	2
Total Tox. Av.	9	2	0	0	36	24	16	10

TABLE 31.-- Secondary Logarithmic Rate Plot Results

Chemical	2,4-dinitrophenyl-(2'-sec-butyl-4',6'-dinitrophenyl)carbonate							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	50	20	0	0	50	40	20	0
B-ft. trefoil	0	0	0	0	60	50	40	40
Buckwheat	100	90	40	0	50	40	10	0
Cabbage	100	100	100	60	100	100	100	70
Corn, field	0	0	0	0	40	40	20	0
Corn, sweet	30	20	0	0	40	30	30	20
Cotton	30	0	0	0	70	60	40	20
Cucumbers	0	0	0	0	0	0	0	0
Flax	50	35	10	10	100	100	70	50
Lima beans	20	0	0	0	30	20	0	0
Oats	40	10	0	0	40	30	10	0
Onions	100	100	100	100	100	100	100	70
Peanuts	0	0	0	0	70	60	40	30
Peas	20	10	0	0	40	30	10	0
Red Clover	10	10	0	0	100	90	70	50
Safflower	100	100	70	50	100	100	100	100
Snapbeans	0	0	0	0	30	10	0	0
Sorghum	0	0	0	0	50	40	30	10
Soybeans	0	0	0	0	60	40	40	20
Squash	0	0	0	0	0	0	0	0
Sugarbeets	100	100	100	70	100	90	70	65
Turnips	100	100	100	70	100	100	80	50
Crop Tox. Av.	39	32	24	16	60	53	40	27
Weeds								
Crabgrass	90	0	0	0	50	30	20	10
Ryegrass	80	50	0	0	100	100	100	70
Other Grasses	0	0	0	0	20	0	0	0
Mustard	100	100	100	70	100	100	100	60
Pigweed	80	50	0	0	20	10	0	0
Other Brdlf.	0	0	0	0	60	40	30	10
Weed Tox. Av.	58	33	17	12	58	47	42	25
Total Tox. Av.	43	32	22	15	60	52	40	27

TABLE 32.-- Secondary Logarithmic Rate Plot Results

Chemical	potassium azide							
Application	Preemergence				Postemergence			
Rate lb/A	16	8	4	2	16	8	4	2
Crops								
Alfalfa	70	50	40	20	90	80	50	10
B-ft. trefoil	50	40	30	20	100	100	50	0
Buckwheat	40	0	0	0	60	40	30	10
Cabbage	60	60	50	50	100	90	70	50
Corn, field	30	10	10	0	30	20	0	0
Corn, sweet	30	10	0	0	40	30	20	0
Cotton	20	10	0	0	100	100	80	50
Cucumbers	40	30	30	20	100	90	60	50
Flax	0	0	0	0	90	60	40	20
Lima beans	40	20	20	0	60	50	30	20
Oats	0	0	0	0	50	30	10	0
Onions	70	60	50	40	100	100	80	50
Peanuts	30	20	0	0	60	50	40	20
Peas	40	30	30	10	90	80	40	20
Red Clover	50	40	30	30	80	70	70	50
Safflower	30	0	0	0	90	70	50	30
Snapbeans	40	10	0	0	80	60	50	40
Sorghum	20	0	0	0	20	10	0	0
Soybeans	20	10	10	0	90	80	50	20
Squash	60	40	40	30	100	60	40	20
Sugarbeets	40	20	10	0	90	80	60	50
Turnips	40	20	20	10	90	70	50	30
Crop Tox. Av.	37	22	17	10	78	65	44	25
Weeds								
Crabgrass	70	50	40	20	30	20	0	0
Ryegrass	60	40	30	20	100	100	100	100
Other Grasses	70	70	50	30	50	20	0	0
Mustard	60	50	50	40	90	70	60	50
Pigweed	70	70	60	60	100	100	100	90
Other Brdlf.	80	70	50	20	70	50	30	10
Weed Tox. Av.	68	58	47	32	73	60	48	42
Total Tox. Av.	44	30	23	15	77	64	45	28

TABLE 33.-- Secondary Logarithmic Rate Plot Results

Chemical	3,4-dichlorobenzyl N-methylcarbamate							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	20	0	0	0	40	30	10	0
B-ft. trefoil	0	0	0	0	70	60	40	0
Buckwheat	40	30	20	10	70	60	30	20
Cabbage	20	0	0	0	35	30	30	10
Corn, field	40	10	10	0	50	40	20	0
Corn, sweet	60	50	40	20	50	40	30	10
Cotton	30	10	0	0	80	70	70	50
Cucumbers	20	10	10	0	70	60	60	40
Flax	10	0	0	0	80	70	30	10
Lima beans	40	30	20	0	50	40	40	40
Oats	10	0	0	0	40	30	20	0
Onions	10	10	0	0	100	100	60	40
Peanuts	20	10	0	0	40	40	30	20
Peas	10	0	0	0	70	60	50	50
Red Clover	0	0	0	0	70	60	40	0
Safflower	20	10	0	0	70	60	60	50
Snapbeans	20	0	0	0	40	40	20	0
Sorghum	30	10	10	10	50	30	10	0
Soybeans	10	0	0	0	20	10	0	0
Squash	0	0	0	0	30	20	0	0
Sugarbeets	40	30	30	30	60	50	40	40
Turnips	0	0	0	0	50	50	50	30
Crop Tox. Av.	20	10	6	3	56	48	34	20
Weeds								
Crabgrass	20	0	0	0	30	20	0	0
Ryegrass	50	30	0	0	70	50	30	20
Other Grasses	20	0	0	0	40	30	20	0
Mustard	10	0	0	0	40	30	30	10
Pigweed	50	40	30	10	60	50	40	30
Other Brdlf.	0	0	0	0	20	10	0	0
Weed Tox. Av.	25	13	5	2	43	32	20	10
Total Tox. Av.	21	10	6	3	53	44	31	18

TABLE 34 .-- Secondary Logarithmic Rate Plot Results

Chemical	isopropyl N-(3-chlorophenyl)carbamate							
Application	Preemergence				Postemergence			
Rate lb/A	8	4	2	1	8	4	2	1
Crops								
Alfalfa	50	40	10	0	30	20	20	10
B-ft. trefoil	80	70	30	20	40	30	10	0
Buckwheat	100	100	100	100	70	70	60	40
Cabbage	90	90	50	40	40	30	20	10
Corn, field	40	30	30	30	10	0	0	0
Corn, sweet	50	40	30	30	20	10	0	0
Cotton	10	0	0	0	50	40	30	30
Cucumbers	95	95	95	95	40	35	30	20
Flax	90	80	30	10	70	60	50	30
Lima beans	40	30	10	0	0	0	0	0
Oats	50	40	40	30	40	35	20	10
Onions	40	30	10	10	20	10	10	10
Peanuts	0	0	0	0	10	0	0	0
Peas	20	0	0	0	20	10	10	0
Red Clover	70	60	40	30	100	70	50	10
Safflower	20	10	0	0	50	40	35	30
Snapbeans	30	20	10	0	50	40	10	0
Sorghum	50	40	40	30	20	10	0	0
Soybeans	0	0	0	0	10	0	0	0
Squash	20	10	0	0	0	0	0	0
Sugarbeets	90	60	40	20	35	30	20	0
Turnips	90	80	50	10	40	40	30	10
Crop Tox. Av.	51	42	28	21	35	26	18	10
Weeds								
Crabgrass	0	0	0	0	20	10	0	0
Ryegrass	100	80	60	60	40	30	20	20
Other Grasses	60	40	10	0	30	20	10	0
Mustard	90	85	50	40	40	30	20	0
Pigweed	90	90	70	60	95	85	80	70
Other Brdlf.	0	0	0	0	100	90	80	50
Weed Tox. Av.	57	49	32	27	54	44	35	23
Total Tox. Av.	52	44	29	22	39	30	22	13

TABLE 35.--Secondary Logarithmic Rate Plot Results

Chemical	2,4-dichlorophenoxyacetic acid alkanolamine salt							
Application	Preemergence				Postemergence			
Rate lb/A (	8	4	2	1	8	4	2	1
Crops								
Alfalfa	50	40	40	30	100	100	100	100
B-ft. trefoil	100	60	50	50	100	100	100	100
Buckwheat	40	20	0	0	100	90	90	90
Cabbage	100	90	90	90	100	100	100	100
Corn, field	10	0	0	0	50	40	30	30
Corn, sweet	20	0	0	0	60	50	20	10
Cotton	80	70	50	50	100	100	100	100
Cucumbers	100	100	80	70	90	90	80	80
Flax	50	50	40	35	100	100	100	100
Lima beans	70	60	40	30	100	100	100	100
Oats	40	30	30	20	0	0	0	0
Onions	100	95	95	60	100	100	100	100
Peanuts	50	30	10	0	90	70	70	70
Peas	70	60	50	40	100	100	100	100
Red Clover	50	40	40	40	100	100	100	100
Safflower	70	60	50	50	100	100	100	100
Snapbeans	80	70	60	50	100	100	100	100
Sorghum	40	40	40	40	60	50	40	20
Soybeans	60	50	40	30	100	100	100	100
Squash	90	90	80	80	90	90	80	80
Sugarbeets	95	90	70	70	100	100	100	100
Turnips	100	95	80	70	100	100	100	100
Crop Tox. Av.	67	56	47	41	88	85	82	81
Weeds								
Crabgrass	40	30	10	10	30	20	0	0
Ryegrass	20	10	10	10	100	80	50	30
Other Grasses	70	60	40	10	40	30	20	0
Mustard	90	90	90	90	100	100	100	100
Pigweed	100	100	100	100	100	100	100	100
Other Brdlf.	90	70	70	70	100	100	100	100
Weed Tox. Av.	68	60	53	48	78	72	62	55
Total Tox. Av.	67	57	48	43	86	83	78	75

TABLE 36.-- Secondary Logarithmic Rate Plot Results

Chemical	4,6-dinitro-o-sec-butylphenol alkanolamine salt							
Application	Preemergence				Postemergence			
Rate lb/A ⁄	8	4	2	1	8	4	2	1
Crops								
Alfalfa	100	60	40	0	20	10	0	0
B-ft. trefoil	40	30	10	0	100	100	70	50
Buckwheat	100	100	100	0	95	90	80	40
Cabbage	100	100	100	100	100	100	100	100
Corn, field	0	0	0	0	90	80	70	50
Corn, sweet	10	0	0	0	100	90	70	50
Cotton	10	0	0	0	100	80	60	50
Cucumbers	70	70	60	30	60	50	30	10
Flax	40	10	0	0	100	100	100	70
Lima beans	10	0	0	0	20	10	0	0
Oats	80	40	0	0	60	50	40	20
Onions	100	100	100	100	100	100	100	100
Peanuts	20	0	0	0	40	40	30	20
Peas	20	10	0	0	30	20	10	0
Red Clover	60	50	40	20	100	100	100	90
Safflower	100	100	100	100	100	100	100	100
Snapbeans	20	10	0	0	10	0	0	0
Sorghum	50	20	0	0	80	70	50	40
Soybeans	20	10	0	0	20	10	0	0
Squash	80	60	50	30	50	40	20	10
Sugarbeets	100	100	100	100	100	100	100	90
Turnips	100	100	100	100	100	100	100	100
Crop Tox. Av.	56	44	36	30	72	65	56	45
Weeds								
Crabgrass	50	30	10	0	30	10	0	0
Ryegrass	90	70	60	50	80	75	70	50
Other Grasses	50	20	0	0	70	50	30	10
Mustard	100	100	100	100	100	100	100	100
Pigweed	100	100	90	60	100	100	90	80
Other Brdlf.	80	70	50	20	100	90	80	50
Weed Tox. Av.	78	65	52	38	80	71	62	48
Total Tox. Av.	61	49	40	32	73	67	57	46

TABLE 37.--Summary table of secondary preemergence logarithmic rate plots showing chemicals tolerated by crops and their control of broadleaf weeds and weed-grasses. 1/

	Chemical	5-bromo-3-tert-butyl-6-methyl=uracil (21)		5-chloro-3-tert-butyl-6-methyl=uracil (22)		1-(2-methylcyclohexyl)-3-phenyl=urea (23)		2-chloro-N-isopropylacetanilide (24)		6-tert-butyl-2-chloro-o-aceto=toluidide (25)		2-bromo-2'-tert-butyl-N-methoxy=methyl-6-methylacetanilide (26)		N-4-(p-chlorophenoxy)-phenyl-N',N'-dimethylurea (27)		N-(3-trifluoromethylphenyl)-N',N'-dimethylurea (28)	
	Weeds	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops	Very active, not tolerated by test species at rates used.		Very active, not tolerated by test species at rates used.										Relatively inactive			
Small Seeded Legume Crops	Alfalfa						X										
	B-ft. trefoil																
	Red clover																
Cereals and Forage Crops	Buckwheat							X	X	X	X	X	X				
	Corn, field						X	X	X			X	X			X	X
	Oats						X	X	X			X	X				
	Sorghum							X	X			X	X			X	X
Oilseed and Fiber Crops	Cotton						X	X	X			X	X			X	X
	Flax						X	X	X	X	X	X	X			X	X
	Peanuts						X	X	X			X	X				
	Safflower						X	X	X	X	X						
	Soybeans						X	X	X							X	X
Sugar Crops	Sugarbeets							X	X	X	X	X	X				
Vegetable Crops	Cabbage						X	X	X	X	X	X	X				
	Corn, sweet						X	X	X			X	X				
	Cucumbers						X	X	X								
	Lima beans						X	X	X			X	X				
	Onions						X	X	X								
	Peas							X	X	X	X	X	X			X	X
	Snapbeans						X	X	X			X	X				
	Squash						X	X	X	X	X						
	Turnips						X	X	X	X	X	X	X				

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

Table 37.--Continued

Chemical		N-tert-butylanaline hydro= chloride (29)		alpha-carboisobutoxyethyl N-(3-chlorophenyl)carbamate (30)		2,4-dinitrophenyl-(2'-sec-butyl -4',6'-dinitrophenyl)carbonate (31)		potassium azide (32)		3,4-dichlorobenzyl N-methyl= carbamate (33)		isopropyl N-(3-chlorophenyl) carbamate (34)		2,4-dichlorophenoxyacetic acid alkanolamine salt (35)		4,6-dinitro-o-sec-butylphenol alkanolamine salt (36)	
Weeds		Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops																
Small Seeded Legume Crops	Alfalfa					X						X		X		X	
	B-ft. trefoil					X	X					X				X	X
	Red clover					X	X									X	
Cereals and Forage Crops	Buckwheat					X		X	X					X			
	Corn, field					X	X	X	X			X	X	X		X	X
	Oats					X		X	X					X		X	
	Sorghum					X	X	X	X							X	X
Oilseed and Fiber Crops	Cotton					X	X	X	X			X	X			X	X
	Flax					X		X	X			X				X	X
	Peanuts					X	X	X	X			X	X	X		X	X
	Safflower							X	X			X	X				
	Soybeans					X	X	X	X			X	X	X		X	X
Sugar Crops	Sugarbeets							X	X								
Vegetable Crops	Cabbage																
	Corn, sweet					X	X	X	X			X		X		X	X
	Cucumbers					X	X	X	X							X	
	Lima beans					X	X	X	X			X	X	X		X	X
	Onions											X	X				
	Peas					X	X	X	X			X	X			X	X
	Snapbeans					X	X	X	X			X	X			X	X
	Squash					X	X					X	X			X	
	Turnips							X	X								

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

TABLE 38.--Summary table of secondary postemergence logarithmic rate plots showing chemicals tolerated by crops and their control of broadleaf weeds and weed-grasses. 1/

Chemical		5-bromo-3-*tert*-butyl-6-methyl= uracil (21)		5-chloro-3-*tert*-butyl-6-methyl= uracil (22)		1-(2-methylcyclohexyl)-3-phenyl= urea (23)		2-chloro-*N*-isopropylacetanilide (24)		6-*tert*-butyl-2-chloro-*o*-aceto-toluidide (25)		2-bromo-2'-*tert*-butyl-*N*-methoxy= methyl-6-methylacetanilide (26)		*N*-4-(*p*-chlorophenoxy)-phenyl-*N'*,*N'*-dimethylurea (27)		*N*-(3-trifluoromethylphenyl)-*N'*, *N'*-dimethylurea (28)	
Weeds		Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops	Very active, not tolerated by test species at rates used.		Very active, not tolerated by test species at rates used.				Relatively inactive						Relatively inactive			
Small Seeded Legume Crops	Alfalfa					X				X		X				X	X
	B-ft. trefoil					X						X					
	Red clover					X											
Cereals and Forage Crops	Buckwheat					X				X		X					
	Corn, field					X				X		X				X	X
	Oats					X						X				X	X
	Sorghum											X				X	X
Oilseed and Fiber Crops	Cotton									X		X				X	X
	Flax					X				X		X				X	X
	Peanuts					X				X		X				X	X
	Safflower									X		X					
	Soybeans					X						X					
Sugar Crops	Sugarbeets					X				X		X					
Vegetable Crops	Cabbage					X				X		X					
	Corn, sweet					X						X				X	X
	Cucumbers					X				X		X					
	Lima beans									X		X					
	Onions											X					
	Peas					X						X					
	Snapbeans											X					
	Squash					X				X		X				X	X
	Turnips											X					

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).

Chemical		N-tert-butylanaline hydro= chloride (29)		alpha-carboisobutoxyethyl N-(3-chlorophenyl)carbamate (30)		2,4-dinitrophenyl-(2'-sec-butyl -4',6'-dinitrophenyl)carbonate (31)		potassium azide (32)		3,4-dichlorobenzyl N-methyl= carbamate (33)		isopropyl N-(3-chlorophenyl) carbamate (34)		2,4-dichlorophenoxyacetic acid alkanolamine salt (35)		4,6-dinitro-o-sec-butylphenol alkanolamine salt (36)	
Weeds		Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses	Brdlf.	Grasses
	Crops																
Small Seeded Legume Crops	Alfalfa					X	X	X	X			X				X	X
	B-ft. trefoil							X	X			X					
	Red clover											X					
Cereals and Forage Crops	Buckwheat					X	X	X	X								
	Corn, field					X	X	X	X			X		X			
	Oats					X	X	X	X			X		X	X	X	
	Sorghum					X	X	X	X			X		X			
Oilseed and Fiber Crops	Cotton						X					X					
	Flax							X	X			X					
	Peanuts						X	X	X			X				X	X
	Safflower							X	X			X					
	Soybeans						X	X	X		X	X				X	X
Sugar Crops	Sugarbeets											X					
Vegetable Crops	Cabbage											X					
	Corn, sweet					X	X	X	X			X		X			
	Cucumbers					X	X					X				X	X
	Lima beans					X	X	X	X			X				X	X
	Onions											X					
	Peas					X	X	X	X			X				X	X
	Snapbeans					X	X					X				X	X
	Squash					X	X	X	X		X	X				X	X
	Turnips							X	X			X					

1/ Checks are placed opposite crops that tolerated respective chemicals (Phytotoxicity index, 30 or less) in which broadleaf weeds or weed-grasses were controlled (Phytotoxicity index, 70 or more).